

MATERIAL DREDGED TECHNICAL REPORT D-77-38 HABITAT DEVELOPMENT FIELD INVESTIGATIONS, MILLER SANDS 3 MARSH AND UPLAND HABITAT DEVELOPMENT SITE, CV COLUMBIA RIVER, OREGON.  $\infty$ APPENDIX F. POSTPROPAGATION ASSESSMENT OF WILDLIFE AD A 056 RESOURCES ON DREDGED MATERIAL, by John A. Crawford Daniel K./Edwards Department of Fisheries and Wildlife / Oregon State University Corvallis, Oregon 97331 May 1978 Final Repert JUL 12 1978 APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED THIS DOCUMENT IS BES THE COPY FORESTS SIGNIFICANT REPRODUCE LEGIBLY. AMESSION NE Prepared for Office, Chief of Engineers, U. S. Army STR Butt Section Washington, D. C. 20314 800 UNANHOUNCES Under Contract No. DACW57-76-C-0180% JUSTIFICATION (DMRP Work Unit No. 4B051) Monitored by Environmental Laboratory U. S. Army Engineer Waterways Experiment Station P. O. Box 631, Vicksburg, Mississippi 39180

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Estimates of mird fuensity by Transect, Station, and Variable Plot Methods by Study Area, Miller Sands, Oregon, July 1976	IUPPL IUPPL IUP	T S VP T S VP T S VP							le I.					pactilin	0 0 17 0 08	77					Jac			0.17 0.11		0.55 0.67 1.18 0 0.17 0.59	
Estimates of pleid flen			Mailard	Fintail	Common merganser	Bald eagle	American kestrel	Great blue heron	Black-bellied plover	Semipalmated plover	Killdeer	Greater yellowlegs	Western sandpiper	Unidentified Scolopacidam	Glaucous-winged gull	Western gull	California gull	Ring-billed gull	Bonaparte's gull	Caspian tern	Unidentified Laridae	Rufous hummingbird	Common flicker	Downy woodpecker	Unidentified Picidae	Willow flycatcher	

Table Al

Table Al (Continued)

		IMAP			IMA			SMAP	d			SMA			NEWA	1
	⊢	S	VP	=	S	ΛÞ	-	S		ΛÞ	-	s	VP	٠	S	VP
Mallard	0.17	0.17	0.03	0.17	0	0								0.17	0.17	0.03
Pintail																
Common merganser	0	1.33	10.61													
Bald eagle	C	0	0.01													
American kestrel																
Great blue heron				0	0	0.01										
Black-bellied plover																
Semipalmated plover																
Killdeer																
Greater yellowlegs							0		0.17 0	0.01	0	0	0.03			
Western sandpiper							0.	0.35 0	0					0	1.50	1.91
Unidentified Scolopacidae																
Glaucous-winged Bull														0	0	0.01
Western gull				0.21	0	0					0	0	0.01	0.45	0	0.05
California gull							0	0		0.04	0	0	0.18	0.50	0.33	0.44
Ring-billed gull				0.23	0	0								0	0	0.05
Bonaparte's gull																
Caspian tern											0.33	0	0.05	0	0	0.05
Unidentified Laridae	0	0.83	60.0	2.00	0.17	0.05	0	0.	0.17 0	60.0	0	0.50	0.08	0	1.00	0.35
Rufous humningbird							0	0.		0.85			٠			
Common flicker																
Downy woodpecker																
Unidentified Picidae																
Willow flycatcher																

Table Al (Continued)

		IBIP			IBI			S	SBIPL			SBI			SBE	1
	ب	S	d A	-	S	VP	2.1	-	S	ΑÞ		S	Λb	<b>:</b>	S	ď
Mallard	0.17	0.50	0.08													
Pintail																
Common merganser																
Bald eagle	0.21	0	0													
American kestrel																
Great blue heron				0	0	o.	0.01							0	0	0.12
Black-bellied plover																
Semipalmated plover																
Killdeer				. 0	0	0.	0.01									
Greater yellowlegs				0	0	0.	01	0	0	0.03						
Western sandpiper								0.17	7 24.67	27.16	3.17	13.67	13.67 17.40	0	6.83	8.70
Unidentified Scolopacidae								0	0	0.11						
Glaucous-winged gull	0	0.17	0.03					0	0	0.03				0.17	0.17	0.03
Western gull	0	0.83		0.17	0 ,	0.	0.01	0	0	0.01	. 0	0.83	0.01	0	0	0.01
California gull	0.17	1.00		0	0.17		0.27	1.17	1.00	0.85	0.17	0.50		0.33	0.50	0.74
Ring-billed gull											0	0	0.05			
Bonaparte's gull	,															
Caspian tern											0	0	0.01	0	0.17	0.01
Unidentified Laridae	0	0.50	0.04	0.17	0 4	0	0.09	0	0.67	90.0	0	0.50	0.48	0.83	0	0.02
Rufous hummingbird																
Common flicker																
Downy woodpecker																
Unidentified Picidae																
Willow flycatcher																

(Continued)

6.63 0.08 0.15 2.36 5.31 5.09 2.98 0.64 0.17 4.17 3.50 0.50 2.00 0.17 0.17 2.00 ITS 8.33 0.83 0.62 1.48 6.11 0 0 0.29 2.21 5.09 1.66 2.32 VP 4.17 2.00 1.67 0.93 1.33 ITSP s 2.78 6.43 4.49 0.14 0.05 1.47 0.25 0.05 V. 0.17 0.17 0.17 1.67 0.17 0.17 S 0.19 0.78 0.25 0.62 0 0 .. 0.33 1.20 0.02 0.05 0.29 0.02 0.08 Y. 0.33 0.33 0.50 IUPP S 0 0 1.79 1.23 ۳ 0 0 0 0 3.82 0.54 0.22 0.66 1.08 0.24 0.99 0.14 0.44 0.32 Ś 0.17 3.00 1.17 0.67 0.50 0.17 0.17 IUPPL 1.17 S 0 2.70 0.37 7.95 0.55 2.47 0.17 0 0 Unidentified Hirundinidae Black-capped chickadee Black-headed grosbeak White-crowned sparrow Red-winged blackbird Brown-headed cowbird Rough-winged swallow Violet-green Swallow American goldfinch Brewer's blackbird Swainson's thrush Wilson's warbler Savannah sparrow American robin Bewick's wren Cliff Swallow Song sparrow Barn swallow Bank swallow Tree swallow Common crow Starling

A4

Table Al (Continued)

Table Al (Continued)

Harin Swallow   1.02 2.67 0.85			IMAP			IMA			SMAP			SMA			NEWA	
1.02   2.07   0.85   4.47   0   0.90   2.24   3.50   1.75   3.25   3.00   1.17   1.85   0.67     swallow   2.90   2.85   1.21   2.17   2.76   3.14   1.67   2.17   2.17   2.00   2.55   3.00   1.13     Hirundinidae   0   0   0.31   0   0   0.91   0.99   0.99   0.05   0.05   0.07   0   0.05   0.05     Hirundinidae   0   0   0.31   0   0   0.19   0   0.00   0.05   0   0.05   0   0.05     In		-	S	d A	-	S	ΔN	-	S	Λ	-	S	ΛÞ	_	S	VP
swatlow 2.90 2.017 0.33 0.43 0.50 0.99 1.30 0.83 1.66 2.38 1.00 1.33 swatlow 2.90 2.50 2.55 0.09 0.90 1.30 0.83 1.60 1.33 swatlow 2.90 2.00 2.55 1.21 2.17 2.17 2.10 2.17 2.00 2.55 0 0.50 0.50 swallow 11 swallow 0 0 0.31 0 0 0.09 0 0 0.07 0 0 0.07 0 0 0.40 0 0.50 0.00 0.00 0.00 0.00 0.0	Barn swallow	1.02	2.67	0.85	4.47	0	0.90	2.24	3.50	1.75	3.25		1.17	1.83	0.67	0.32
swallow         2.90         2.00         2.55         1.21         2.17         2.76         3.14         1.67         2.12         2.17         2.00         2.55         0         0.50           swallow           Hirundinidae         0         0         0.19         0         0.07         0         0.40         0         1.83           chickadee         n	Cliff swallow	0.22	0.17	0.33	0.43	0.50		1.30	0.83	1.66	2.38					
Smallow Hirundinidae 0 0 0.31 0.0 0.35 1.21 2.17 2.76 3.14 1.67 2.12 2.17 2.00 2.55 0 0.50 0.50 swallow Hirundinidae 0 0 0.31 0 0.031 0 0.009 0 0.00 0.005 0 0	Violet-green swallow															
Hirundinidue 0 0 0.31 0 0 0.19 0 0 0.07 0 0 0.40 0 1.83 collected 0 0 0.21 0 0 0.09 0 0 0.05 0 0 0.02 chickadee n n in hrush 1104.17 0 0 0 0 0.45 0 0 0.59 cobird 0 0.17 0.67 0.33 0 0.43 0.50 0 0 0 0.32 cobird dimeth 0.17 0.67 0.33 0 0.43 0.50 0 0 0 0.32 cobird dimeth 0.17 0.67 0.33 0 0.43 0.50 0 0 0 0.32 cobird dimeth 0.17 0.67 0.33 0 0.483 0.50 0 0 0 0.32 cobird dimeth 0.17 0.67 0.33 0 0.483 0.50 0 0 0 0.32 cobird dimeth 0.17 0.67 0.33 0 0.483 0.50 0 0 0 0.32 cobird dimeth 0.17 0.67 0.33 0 0.483 0.50 0 0 0 0.32 cobird dimeth 0.17 0.67 0.33 0 0.483 0.50 0 0 0 0.32 cobird dimeth 0.17 0.67 0.33 0 0.483 0.50 0 0 0 0.32 cobird dimeth 0.17 0.67 0.33 0 0.483 0.50 0 0 0 0.32 cobird dimeth 0.17 0.67 0.33 0 0.483 0.50 0 0 0 0.32 cobird dimeth 0.17 0.67 0.33 0 0.483 0.50 0 0 0 0 0.32 cobird dimeth 0.17 0.67 0.33 0 0.483 0.50 0 0 0 0 0.32 cobird dimeth 0.17 0.67 0.33 0 0.483 0.50 0 0 0 0 0.32 cobird dimeth 0.17 0.67 0.33 0 0.483 0.50 0 0 0 0 0 0.32 cobird dimeth 0.17 0.67 0.33 0 0.483 0.50 0 0 0 0 0 0.32 cobird dimeth 0.17 0.67 0.33 0 0.483 0.50 0 0 0 0 0 0.32 cobird dimeth 0.17 0.67 0.33 0 0.483 0.50 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Tree swallow	2.90	2.00	2.55	1.21	2.17	2.76	3.14	1.67	2.12	2.17			0	0.50	0.64
Hirundinidae 0 0 0.31 0 0 0.19 0 0 0.07 0 0 0.40 0 1.83 chickadee  chickadee  n in  hrush  104.17 0 0 0.17 0.59  grosbeak  drinch  0 0.17 0.67 0 0 0.40 0 1.83  chistandinidae 0 0.07 0 0 0.07 0 0 0.00 0.00 0.00 0.0	Bank swallow															
Hirundinidae 0 0 0 0.31 0 0 0.199 0 0 0.07 0 0 0.40 0 1.83 chickadee  chickadee  n in hrush  104.17 0 0 0.17 0.59  chickadee  n in hrush  104.17 0 0 0 0 0.45 0 0 0.59  chickadee  n in hrush  104.17 0 0 0 0 0.45 0 0 0.59  chickadee  n in hrush  104.17 0 0 0 0 0.45 0 0 0 0.59  chickadee  n in hrush  104.17 0 0 0 0 0.45 0 0.45  chickade  chickadee  n in hrush  in hru	Rough-winged swallow															
chickadee  n hrush 104.17 0 0 0 0.83 0.50  grosbeak digmeh 0.17 0.67 0.33 0.683 0.50  chickadee  n hrush 104.17 0 0 0 0 0.45 0 0 0.59  chickate  n hrush 104.17 0 0 0 0 0.45 0 0.59  chickate cowbird 0 0 0.17 0.59  grosbeak digmeh 0 0.17 0.67 0.33 0.683 0.50  chickate 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Unidentified Hirundinidae	0	0	0.31	0	0	0.19	0	0	0.07	0	0	0.40	0	1.83	0.26
ped chickadee wren robin s thrush 104.17 0 0 0 0 0.45 0 0.59 warbler d blackbird ded cowbird ded grosbeak goldfinch sparrow wmed sparrow row	Common crow	0	0	0.21	0	0	60.0	0	0	0.05	0	0	0.05			
robin s thrush 104.17 0 0 0 0 0.45 0 0.59  warbler d blackbird ded cowbird ded grosbeak goldfinch sparrow wned sparrow row	Black-capped chickadee															
robin s thrush 104.17 0 0 0 0 0.45 0 0.59  warbler d blackbird ded cowbird ded grosbeak geldfinch sparrow wned sparrow row	Bewick's wren															
### sthrush	American robin															
104.17   0   0   0   0   0   0   0.59	Swainson's thrush															
0 0.17 0.59 0 0 0.17 0 0 0 0.17 0.17 0.67 0.33 0 0.83 0.50 0 0	Starling	104.17	0	0	0	0	0.45	0	0	0.59						
0 0.17 0.59 0 0 0.17 0 0 0 0.17 0.17 0.67 0.33 0 0.83 0.50 0 0	Wilson's warbler															
0 0 0 0.17 0 0 0 0.17	Red-winged blackbird	0	0.17	0.59												
0 0 0 0.17 0 0 0 0.17 0 0 0 0.17 0.17 0.	Brewer's blackbird															
0.17 0.67 0.33 0 0.83 0.50	Brown-headed cowbird	0	0	0.17	0	0	0.17									
0.17 0.67 0.33 0 0.83 0.50 0 0	Black-headed grosbeak															
Savannah sparrow White-crowned sparrow Song sparrow	American goldfinch	0.17	0.67	0.33	0	0.83	0.50				0	0	0.32			
White-crowned sparrow Song sparrow	Savannah sparrow															
Song sparrow	White-crowned sparrow															
	Song sparrow															

Table Al (Concluded)

		181			181				SBIPI.			SBI			SBE	
	1	S	VP	1	S		VP.	-	S	VP	-	S	ΛÞ	T	S	Y
Barn swallow								2.15	0.67		1.25	2.67		0	0.17	0.21
Cliff swallow							••	0.28	0	60.0	0.56	0.50				
Violet-green swallow																
Tree swallow	0.48	0	0								0.48	0	0.44			
Bank swallow																
Rough-winged swallow																
Unidentified Hirundinidae								0	0.83		0	0.17	1.41			
Conuncti Crow	0.17	0	0	0	0	0.	0.19	0	0	0.17	0	0	0.05	0.33	0.17	0.12
Black-capped chickadee																
Bewick's wren				•												
American robin																
Swainson's thrush																
Starling								0	0	0.32						
Wilson's warbler																
Red-winged blackbird																
Brewer's blackbird																
Brown-headed cowbird																
Black-headed grosheak																
American goldfinch				0.17	7 0		0.59									
Savannah sparrow																
White-crowned sparrow																
Song sparrow																

Table A2 Estimates of Bird Density by Transect, Station, and Variable Plot Methods by Study Area, Miller Sands, Oregon, August 1976

		IUPPL			IUPP			IUP			ITSP			ITS	-
	-	s	VP	=	S	VP	_	S	d /		s	VP	T	S	4
Mallard															
Pintail															
Common merganser															
Bald eagle												4			
American kestrel				0	0	0.09						4			
Great blue heron															
Black-bellied plover															
Semipalmated plover															
Killdeer															
Greater yellowlegs															
Western sandpiper															
Unidentified Scolopacidae															
Glaucous-winged gull															
Western gull							0	0	0.02						
California gull									,						
Ring-billed gull							0	0	0.08						
Bonaparte's gull									0						
Caspian tern							0	0	0.03						
Unidentified Laridae															
Rufous hummingbird				0	0	0.15									
Common flicker							0	0	0.08						
Downy woodpecker							0	0	0.01	0	0	0.11			
Unidentified Picidae													;		
Willow flycatcher										0.55	1.83	4.13	0.55	1.00	3.54
					00)	(Continued)									

Table A2 (Continued)

		IMAP			IMA			SMAP			SNA			MAKA	1
	-	S	dA	-	s	d A	=	S	VP	-	S	VP	-	ò	
Mallard	0	0	0.13	0	0	0.02	0.33	0	1.17	0	0	60.0	1.83	0	
Pintail	0	0	0.08				0	0	0.42				0	0	
Common Merganser															
Bald eagle	0	0	0.01												
American kestrel															
Great blue heron				0	0	0.01	0	0	0.01				0	0	
Black-bellied plover															
Semipalmated plover													0	0	
Killdeer										0.17	0	0.01			
Greater yellowicgs															
Western sandpiper				0.17	0	0	0	0.50	0.64	0.70	0.70 1.67	2.12	0.18	0	
Unidentified Scolopacidae															
Glaucous-winged gull													0	0	
Western gull	0	0	0.01	0	0	0.01							0.21	0	
California gull	0.50	0.17	0.13	0.17	0	0.04	0	0	0.04	0	0	0.04	0	0	
Ring-billed gull				0	0	0.08				0	0	0.08	0.23	0	
Bonaparte's gill													0	0.17	
Caspian tern	0	0	0.33	0	0	0.09				0.33	0	0.19			
Unidentified Laridae										0	0	0.02	,	0.50	
Rufous hummingbird	0.23	0	0												
Common flicker															
Downy woodpecker															
Unidentified Picidae															
Willow flycatcher															

0.03

0.02

0.85 0.02 0.03 0.05 0.04 0.19 0.28

Table A2 (Continued)

		IBIP	-		IBI				SBIPL			SB1			SBE	
	~	S	VP	-		S	VP	1	S	ΥP	_	S	VP	-	S	VP
Mallard	0	0	0.10					0	0	0.62				0.33	0	0.18
Pintail																
Common merganser																
Bald eagle																
American kestrel																
Great blue heron											0	0	0.01			
Black-bellied plover				0	0	0	0.02									
Semipalmated plover														0.18	0	0.44
Killdeer											0	0.17	0.03	0.17	0.17	0.05
Greater Yellowlegs																
Western sandpiper											0.50	3.67	4.88	3.83	2.67	2.33
Unidentified Scolopacidae																
Glaucous-winged gull	0	0	0.03											0.17	0	0
Western gull	0	0	0.01	0	0	0	0.04							0	0	0.01
California gull				0	0.	0.17 0	0.05	0	0	0.11	0.17	0.17	0.11	0	0.50	0.01
Ring-billed gull				0	0	0	.02	0	0.17	0.03				0	0	0.04
Bonaparte's gull																
Caspian term	0	0	0.01	0	0	0	0.05	0	0	0.01	0	0	0.05	0.50	0	0.03
Unidentified Laridae																
Rufous hummingbird																
Common flicker																
Downy woodpecker																
Unidentified Picidae																
Willow flycatcher																

Table A2 (Continued)

		IUPPL			IUPP			IUP			ITSP			ITS	
	-	S	dΛ	-	S	VP	<u>-</u>	S	VP	<b>:</b>	S	VP	-	S	VP
Barn swallow	0	2.50	4.23	0	1.0	1.99	: 1.47	1.50	1.08				0	0.50	0.74
Cliff swallow															
Violet-green swallow															
Tree swallow	1.85	0	0.50	0.93	0.67	0.58	0	0	0.08.						
Bank Swallow	3.43	0	0												
Rough-winged swallow															
Unidentified Hirundinidae	0	1.50	0.38												
Common crow	0	0.17	0.02	0.39	0	0.02				09.0	0.50	0.64	0.20	1.00	1.27
Black-capped chickadee										3.21	1.50	1.99	1.67	0.67	1.33
Bewick's wren				•						0.21	0.33	0.25	0	0	0.33
American robin							0	0.17	0.03	0.55	0.33	0.16	0	0.50	0.21
Swainson's thrush				0	0.17	0.18				0	1.00	1.33	0	0.33	0.33
Starling	5.83	16.67	5.31	0	0	0.35									
Wilson's warbler	0.33	0.17	0.29												
Red-winged blackbird															
Brewer's blackbird															
Brown-headed cowbird				0.19	0.17	0.15									
Black-headed grosbeak															
American goldfinch	0.21	2.50	2.49												
Savannah sparrow	5.90	5.50	6.58	0.26	2.17	2.76	1.28	0.50	0.64						
White-crowned sparrow	0.45	0.83	0.65												
Song sparrow										0.56	0.50	0.74	0.56	0.50	0.44

Table A2 (Continued)

		IMAP			IMA			SMAP			SNA			MAK	1
	J.	s	ΑĿ			95	Ę	0	9/8	E	ď	ďΛ	1	s.	VP
				-	n	d	-	0	A	-	0	4	-		:
Barn swallow	2.33	1.50	1.70	70.1	1.07 7.67	4.19	16.06	5.67	2.76	12.20	4.33	2.49	0.31	1.33	0.85
Cliff swallow							2.38		1.66	1.08	0.83	1.66			
Violet-green swallow							0		0.11	1.30	0.67	0.27			
Tree swallow							2.17		1.27	0	0.33	0.42			
Bank swallow				,			0.56		0.21	0	0.17	0.08			
Rough-winged swallow										0.42	1.00	1.99			
Unidentified Hirundinidae							0	3.50	1.84	0	1.67	1.79	0	0.50	0.33
Сощиоп стом													0.23	0.33	0.24
Black-capped chickadee															
Bewick's wren															
American robin															
Swainson's thrush															
Starling															
Wilson's warbler															
Red-winged blackbird															
Brewer's blackbird															
Brown-headed cowbird															
Black-headed grosbeak															
American goldfinch				220	0	0.58									
Savannah sparrow							0	0.50	0.54	0.83	0.17	0.11			
White-crowned sparrow															
Song sparrow															

Table A2 (Concluded)

		1814			181			SBIPL		8	SBI			SBE	
	=	S	VP	_	S	V	<u>-</u>	S	VP	=	s	d \	F	v	dy
Barn Swallow	0.54	1.00	1.06	0	1.17	0.85	1.97	7.33	8.49	1.08	1.50	1.27	1.08	2.50	3.18
Cliff swallow										0	23 0	0.57			
Violet-green swallow							0	0.33 0.42	0.42	<b>.</b>	3	6.5			
Tree swallow															
Bank Swallow															
Rough-winged swallow															
Unidentified Hirundinidae															
Common crow	0	0.17	0.05	0	0.50	0.12	0	0	0.02	0	0	0.17	c	•	70 0
Black-capped chickadee											,		•	,	6.0
Bewick's wren															
American robin															
Swainson's thrush															
Starling															
Wilson's warbler															
Red-winged blackbird															
Brewer's blackbird															
Brown-headed cowbird															
Black-headed g rosbeak															
American goldfinch															
Savannah sparrow				0	0	0.11									
White-crowned sparrow															
Song sparrow															

(Continued)

Estimates of Bird Density by Transect, Station, and Variable Plot Methods by Study Area, Miller Sands, Oregon, September 1976

Y.

		IUPPL			IUPP			IUP			ITSP			115
	-	S	VP	7	S	VP	_	S	ΛÞ	1	S	ΑΛ	-	S
Western grebe														
Horned grebe														
Double-crested cormorant														
Whistling swan														
Canada goose														
Mallard	0	0	0.03	0	0	0.04								
Pintail														
American wigeon														
Green-winged teal														
Lesser scaup														
Surf scoter														
Common werganser	0	0	0.01											
Unidentified Anatidae														
Marsh hawk														
Red-tailed hawk														
Merlin														
American kestrel														
Great blue heron														
Black-bellied plover														
Semipalmated plover														
Kiildeer	9	0	0.45											
Greater yellowlegs														
Long-billed dowitcher														
Dualin														

Table A3 (Continued)

		IMAP			IMA			SMAP			SMA			NEW	
	٦	S	ΛÞ	-	S	VP	٦	S	VP	۲	S	dΛ	<u>-</u>	S	VP
Western grebe															
Horned grebe	0.21	0	0	0	0	0.03									
Double-crested cormorant															
Whistling swan										0	0	0.42			
Canada goose															
Mallard	0.33	0	0.03				0	0.17	0.03	0	0	0.05	0	0	0.58
Pintail										0	0	0.01	0	0	0.21
American wigeon															
Green-winged teal															
Lesser scaup															
Surf scoter															
Common merganser				0	0	0.07							0	0	0.12
Unidentified Anatidae															
Marsh lawk															
Red-tailed hawk															
Merlin															
American hestrel															
Great blue heron				0	0	0.01				С	С	0.01	0	0	0.01
Black-bellied plover															
Semipalmated plover										0	0	0.08			
Killdeer				0	0	0.32				0	0	0.21	0.33	0.17	0.27
Greater yellowlegs															
Long-billed dowitcher															
Dunlin															

Table A3 (Continued)

		1819			181		,	SBIPL			SBI			SBE	
	۳	s	ΛÞ	-	S	VP	اے	S	VP	⊢	S	ΛÞ	۲	S	VP
Western grebe						٠									
Horned grebe						•									
Double-crested cormorant				0	0	0.01									
Whistling swan															
Canada goose													0	0	0.08
Mallard										0	0	0.09			
Pintail				0	0	0.18									
American wigeon															
Green-winged teal															
Lesser scamp															
Surf scoter															
Common merganser										0	0	0.04	0	0	0.08
Unidentified Anatidae															
Marsh hawk															
Red-tailed hawk															
Merlin															
American kestrel															
Great blue heron				0	0	0.01				0	0	0.01	0	0	0.01
Black-bellied plover							0	0	0.03						
Semipalmated plover							0.51	0.50	0.16	2.04	1.33	0.95	0	0	0.11
Killdeer				0.56	0.50	0.26	0	0.33	0.22						
Greater yellowlegs															
Long-billed dowitcher															
Dunlin															

		IUPPI.			IUP			IUP			ITSP			ITS	1
	-	s	VP	-	S	VP	<b>=</b>	S	Λb	٠,	S	VP	٢	S	Λ
Sanderling															
Least sandpiper															
Western sandpiper															
Common snipe															
Unidentified Scolopacidae															
Glaucous-winged gull															
Western gull															
Herring gull															
California gull															
Ring-billed gull															
Bonaparte's gull															
Caspian tern															
Unidentified Laridae															
Belted kingfisher	0	0	0.08												
Common flicker	0	0	0.01	0	0	0.01							0	0	0.11
Barn Swallow	0	0.17	0.64	0	0.33	0.13	0	1.00	1.01						
Common Faven							0	0	0.07						
Common crow	0	0	0.27	0	0	0.09							•	0	0.15
Black-capped chickadee	0	0	0.29							2.44	2.00	0.99	1.56	23	2.98
House wren													0.28	0	0
Winter wren															
Bewick's wren										0.21	0.67	0.88	c	0.17	0.15
American robin	0,42	0	0												
Swainson's thrush										0	0	0.22			,

(Continued)

Table A3 (Continued)

Samderling  Least sandpiper  Common stipe Directors with gall  Last sallo state of the compon raven  Common raven  Winter wren  Buck-captal chickleder  Buck-captal chickleder  Common raven  Common r			IMAP			IMA			SMAP			SMA			MMA	
: 5.49 3.33 1.00  ltpqucidae  gull  0.17 0.03  0.24 0.17 0.04  0.28 0 0  0  0  0.10		اب	S	VP	اــ	S.	Α	اء	S	VP	٢	s	VP	-	S	ΛÞ
5.49 3.33 1.06  9.24 0.17 0.04  9.28 0 0  9.10 0.28 0 0  9.21 0.17 0.04  9.29 0.17 0.04  9.20 0.17 0.04  9.20 0.10 0.28 0 0  9.00 0.00 0.00 0.00 0.00  9.00 0.00 0	Sanderling															
1	Least sandpiper														*	
10pacidae gull 0.17 0 0.50 0.00 0.017 0 0.020 0.02 0 0.03 0.03 0.03 0.04 0.17 0 0.020 0.05 0 0.03 0.05 0 0.03 0.05 0 0.03 0.07 0.03 0.08 0.03 0.03 0.09 0.03 0.00 0.017 0.03 0.03 0.018 0.03 0.03 0.019 0.03 0.03 0.019 0.03 0.03 0.019 0.03 0.03 0.019 0.03 0.03 0.019 0.03 0.03 0.019 0.03 0.03 0.03 0.019 0.03 0.03 0.03 0.019 0.03 0.03 0.03 0.019 0.03 0.03 0.03 0.03 0.019 0.03 0.03 0.03 0.03 0.03 0.019 0.03 0.03 0.03 0.03 0.03 0.019 0.03 0.03 0.03 0.03 0.03 0.019 0.03 0.03 0.03 0.03 0.03 0.019 0.03 0.03 0.03 0.03 0.03 0.03 0.019 0.03 0.03 0.03 0.03 0.03 0.03 0.03 0.019 0.019 0.03 0.03 0.03 0.03 0.03 0.03 0.03 0.019 0.03 0.03 0.03 0.03 0.03 0.03 0.03 0.0	Western sandpiper							0.24						0	0	0.92
0.17   0   0.50   0.01   0.07   0.0	Common snipe										0.28	0	0			
bull 0.17 0 0.50	Unidentified Scolopacidae															
0.17 0 0.09 0 0 0.005  1.01 0 0.09 0 0 0.005  1.02 0 0 0.005  1.03 0 0.01  1.04 0 0.02 0 0 0.03  1.05 0 0.03  1.05 0 0.03  1.07 0 0.03  1.08 0 0.01  1.08 0 0.01  1.09 0 0.01	Glaucous-winged gull				0	0	0.01							0	0	0.01
0.17 0 0.09 0 0 0.05  idae  0 0.07 1.83 0.85 0.33 0 0.37 4.33 2.83 3.08 1.17 2.17 1.96  ickadee  0 0.09 0 0.005  0 0.001  0 0.017 0 0.002 0 0.003  0 0.017 0 0.003  0 0.017 0 0.003  0 0.017 0.005  0 0.017 0 0.001  0 0.017 0.005 0 0 0.017 0 0.014  1.117 2.117 1.96  1.118 0.005 0 0 0.017 0 0.015  1.119 1.119 1.119  1.119 1.119 1.119  1.119 1.119 1.119  1.119 1.119 1.119  1.119 1.119 1.119	Western gull	0.17		0.50			0.07							0	0	0.02
0.17 0 0.09 0 0 0.05	Werring gull															
idae  0 0 0 0.02 0 0 0.03 0 0 0 0.01  idae  0.17 0 0.03 0 0 0 0.01  0.17 0 0.05  ckadee  0 0 0.01 0.01 0.05  1.17 0.05 0 0 0.01  0 0.01 0.01 0.05  1.17 0.05 0 0 0.01  1.18 0.05 0 0.01  0 0.01 0.01 0.01  0 0.01 0.01 0	2 California gull	0.17		0.09	0	0	0.05							0	0.17	0.07
Laridae  Laridae  1. 1. 83  0. 85  0. 33  0. 03  0  0. 01	Ring-billed gull	0	0	0.05	. 0	0	0.08				0	0	0.02	0	0	0.21
Laridae Sher sher  0.17 0 0.03 0 0 0.01  0.17 1.83 0.85 0.33 0 0.37 4.33 2.83 3.08 1.17 2.17 1.96  chickadee  1.11 1.83 0.85 0.01  0 0 0.01 0.02 0 0.01 0 0.01 0 0.17 0.05 0 0  chickadee  1.11 1.11 0.11 0.11 0.11 0.11 0.11 0.1	Bonaparte's gull															
0.17 0 0.05 0.05 0.17 0 0.05 0 0.17 0 0.05 0 0.17 0.05 0 0.17 0.05 0 0.17 1.83 0.85 0.33 0 0.37 4.33 2.83 3.08 1.17 2.17 1.96 0 0 0.01 0 0.17 0.05 0 0	Caspian tern	0	0	0.05	0	0	0.03	0	0	0.01				0	0	0.04
0.17 1.83 0.85 0.33 0 0.37 4.33 2.83 3.08 1.17 2.17 1.96 0 0 0.001 0.002 0 0.001 0 0.17 0.05 0 0	Unidentified Laridae				0.17	0	0.08				0	0.33	0.08	0	0.17	0.08
0.17 1.83 0.85 0.33 0 0.37 4.33 2.83 3.08 1.17 2.17 1.96 0 0 0.001 0.002 0 0 0.01 0 0.17 0.05 0 0	Belted kingfisher															
0.17 1.83 0.85 0.33 0 0.37 4.33 2.83 3.08 1.17 2.17 1.96  chickadee  1.17 2.17 1.96  chickadee  1.18 0.02 0 0 0.01 0 0.17 0.05 0 0 0 0.11 0.11 0.11 0.11 0.11 0.1	Common flicker															
chickadee 0 0.01 0 0.01 0 0.17 0.05 0 0 0 chickadee 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Barn swallow	0.17			0.33	0	0.37	4.33		3.08	1.17	2.17	1.96			
0 0 0.01 0 0.01 0 0.17 0.05 0 0 0 1 chickadee	Common raven															
Black-capped chickadee House wren Winter wren Bewick's wren American robin Swainson's thrush	Conunch Crow	. 0	0	0.01			0.05	0	0	0.01	0	0.17	0.05	С	0	0.68
House wren Winter wren Bewick's wren American robin Swainson's thrush	Black-capped chickadee															
Winter wren Bewick's wren American robin Swainson's thrush	House wren															
Bewick's wren American robin Swainson's thrush	Winter wren															
American robin Swainson's thrush	Bewick's wren															
Swainson's thrush	American robin															
	Swainson's thrush															

		1819			181			SBIPL			SBI			SBE	1
	_	S	VP	اے	S	4V	_	S	VP	_	s	ΛÞ	-	S	A N
Sanderling				0	0	0.24									
Least sandpiper							1.04	0	0.27				1.67	2.17	1.38
Western sandpiper				3.83	2.17	6.93	1.83	1.00	1.33	8.57	2.00	5.16	0.67	2.17	5.06
Common snipe															
Unidentified Scolopacidae													0	0	0.68
Glaucous-winged gull															
Western gull	0	0	0.05	0.17	0	0.05				0.17	0.17	0.08	0.17	0.33	0.21
Herring gull															
California gull	0.33	0	0.08	0	0.33	0.08	0	0	0.02				0.33	0.33	0.09
Ring-billed gull				0	0.17	0.05				0	0	0.02	0.33	0	0.02
Bonaparte's gull															
Caspian term	0	0.17	0.14	0.17	0	0.08				0	0	0.05	c	0	0.19
Unidentified Laridae	0	0	0.05	0	0	0.05	0	0.33	0.01	0.33	0.17	0.03	0	0.33	0.01
Belted kingfisher															
Common flicker															
Barn swallow				0	0.83	0.74	0	0.83	0.58	2.83	2.83	1.11	0.17	1.33	0.90
Common raven															
Сопион стом	0	0	0.01							0	0	0.05	0	0	0.03
Black-capped chickadee															
House wren															
Winter wren															
Bewick's wren															
American robin															
Swainson's thrush															

(Continued)

Table A3 (Continued)

						-					-		-	-	-
		IUPPL			IUPP			IUP			ITSP			ITS	
	-	s	٧٧	Ţ	s	γÞ		S	VP	-	S	VP	-	s	VP
Golden-crowned kinglet															
Ruby-crowned kinglet															
Water pipit	0	0	0.05												
Starling	0.21	0.17	0.05	0	0	60.0									
Yellow-rumped warbler															
Western meadowlark															
Brewer's blackbird															
Brown-headed cowbird	0.83	0.17	0.16												
House finch				•											
American goldfinch				0		1.18									
Savannah sparrow	2.73	3.00	2.16	1.64	2.00	1.21	1.6	4 2.6	1.64 2.67 2.57						
Song sparrow	0	0	0.08							0.17	7 0.17	7 0.33	0.55	0.83	1.00

(Continued)

		IMAP			IMA			SMAP			SMA		APLA
	T	S	٧Þ	1	s	VP	Ţ	s	VP	-	s	ΛÞ	S
Golden-crowned kinglet													
Ruby-crowned kinglet													
Water pipit										0	0.50 0.16	0.16	
Starling													
Yellow-rumped warbler													
Western meadowlark													
Brewer's blackbird	0.17	0.17 0.17	0.08				0	0	0.05				
Brown-headed cowbird				0	0	2.65							
House finch				•									
American goldfinch	0	0	0.25										
Savannah Sparrow							0.88	1.00	0.76	0.44	0.44 0.50 0.76	0.76	
Song sparrow	0	1.56	1.30										

A20

2

Table A3 (Continued)

Table A3 (Concluded)

		181P			181		3	SBIPL			SBI			SBE	
	٦	S	VP	-	S	ΑΛ	١	S	Λρ	1	s	Λ	_	s	ΛÞ
Golden-crowned kinglet															
Ruby-crowned kinglet															
Water pipit										0.42	0	0.04			
Starling	0	0	1.89										0	0	0.94
Yellow-rumped warbler															
Western meadowlark															
Brewer's blackbird															
Brown-headed cowbird															
House finch															
American goldfinch	1.67	2.12	0	•						0	0.17	0.21			
Savannah sparrow				0	0	0.07									
Song sparrow															

(Continued)

Estimates of Bird Density by Transect, Station, and Variable Plot Methods by Study Area, Miller Sands, Oregon, October 1976

VP

		IUPPL			IUPP			IUP		ITSP			ITS
	1	s	VP	٦	S	VP	_	s	VP	s	VP	·	S
Western grebe													
Horned grebe													
Double-crested cormorant													
Whistling swan													
Canada goose													
Mallard				0	0	0.01							
Pintail				0	0	0.53							
American wigeon													
Green-winged teal													
Lesser scaup													
Surf scoter													
Common merganser													
Unidentified Anatidae													
Marsh hawk				0	0	0.03							
Red-tailed hawk				0	0	0.03							
Merlin													
American kestrel													
Great blue heron													
Black-bellied plover													
Semipalmated plover													
Killdeer	0	0	0.14										
Greater yellowlegs													
Long-billed dowitcher													
Dunlin													

Table A4 (Continued)

		TMAP			IMA			SMAP			SNA			MMA	
	L	S	VP	-	S	VP	-	S	VP	_	S.	VP	-	S	VP
						••									
Western grebe															
Horned grebe				0	0	0.05									
Double-crested cormorant													0	0	0.01
Whistling swan															
Canada goose					•					,	,		,		
Mallard	0	0	60.0	0	-	0.02				0	0	0.04	0	0	0.36
Pintail										1.25	0	0	0	0	0.05
American wigeon													0	0	0.20
Green-winged teal				٠									0	0	0.14
Lesser scaup															
Surf scoter				0	0	0.05									
Common Merganser	0	0	0.19	0	0	0.24									
Unidentified Anatidae															
Marsh lawk															
Red-tailed hawk															
Merlin															
American kestrel	,			4											
Great blue heron				0	0	0.01				0.01	0	0	0	0	0.01
Black-bellied plover															
Semipalmated plover															
Killdeer	0	0	0.16	0		0.16							4.33	0.17	1.01
Greater yellowlegs				0	0	0.03	0.19	0	0.03				0	0	90.0
Long-billed dowitcher							0	0.50	0.64						
Ounlin										0	0.50	60.0			

(Continued)

Table A4 (Continued)

		IBIP			IBI			SBIPL			SBI			SBE	
	-	S	dV.	<u>-</u>	S	Λħ	٢	S	Λb	ь	S	VP	-	S	VP
Western grebe	0	0	0.01												
Horned grebe															
Double-crested cormorant				0	С	0.05							0	0	0.01
Whistling Swan															
Canada goose															
Mallard	0	o	0.01	0	0	0.25				0	0	0.01			
Pintail							0	0	0.03	0	0	90.0			
American wigeon	0	0	0.01							0	0	0.03			
Green-winged teal															
Lesser scaup															
Surf scoter															
Common merganser							0	0	0.16	0	0	0.29	0.17	0	0.05
Unidentified Anatidae															
Marsh hawk															
Red-tailed hawk															
Merlin															
American kestrel							0	0.17	0.21						
Great blue heron										0	0	0.01	0	0	0.01
Black-bellied plover										0	0	0.01			
Semipalmated plover										0	0.17	0.50			
Killdeer	2.41	0.17	0.09	0	0.33	0.18	0	0.17	0.35	0.19	0	0.04			
Greater yellowlegs															
Long-billed dowitcher				0.17	0 /	0									
Dunlin				0	0.33	0.08									

(Continued)

Table - Carinoed)

	Тамы	idhi			TUP			ITSP			ITS	
	T S VP	70		_	S	ΛÞ	-	s	VP	_	S	VP
Sanderling			••									
Least andpiper												
Western sandpiper												
Common snipe		0 0	1									
Glaucous-winged gull				0	0	0.05						
Western gull												
Herring gull												
California gull				0	0	0.09						
Ring-billed gull												
Bonaparte's gull												
Caspian tern												
Unidentified Laridae												
Belted kingfisher												
Common flicker							0.56	0	0	0	0.17	0.11
Unidentified Picidae							0.17	0	0.33			
Barn swallow												
Сольоп гауеп												
Common Crow	0.42 0.17 0.43	0 0	1				1.25	0.17	0.15			
Black-capped chickadee							4.89	4.17	7.29	1.56	4.83	67.73
House wren												
Winter wren							1.17	0.33	3.54	1.17	1.50	5.3
Bewick's wren							0.42	1.33	0.59	c	0.33	0.29
American robin												
Swainson's thrush												

Table A4 (Continued)

NEW	VP T			07.0	4.91	.07 0.28 0	0	0	0	0	0.02 0			0.17	0.03		3.29			0.02 0						
SMA	S			1.85	17.17	0.33					0 0				0 0		0 3			0 0						
	_			7.35	15.71	2.26					0				0		0			0						
	VP		20	0.05		0		0.03		0.03		0.07							0.07	0.01						
SMAP	s			0.17		0		0		0		0							0	0						
	1			0		1.41		0.17		0		0							0	0						
	VP					0.03		0.03					0.01	0.05	0					0.01				i		
IMA	S					0.17		0					0	0.17	0					0						
	<u>+</u>					1.13		0				•	0	0	0.24					0						
	VP					0.07		0.03		0.07	0.09			0.05						0.01						
IMAP	s					0.17		0		0	0			0.17						0						
	E-					0.56		0		0	0			0						, 0						
		011	Sandering	Least sandpiper	Western sandpiper	Common snipe	Glaucous-winged gull	Western gull	Herring gull	California gull	Ring-billed gull	Bonaparte's gull	Caspian tern	Unidentified Laridae	Belted kingfisher	Common flicker	Unidentified Picidae	Barn swallow	Common raven	Common Crow	Black-capped chickadee	House wren	Winter wren	Bewick's wren	American robin	

0 0.01 0.05 0.05 0.07 0.05

VP

0.08

0.09

Table A4 (Continued)

T S WP			1819			181			SBIPL	L			SBI			SBE	
er   16.50   6.50   5.77   3.17   11.00    gull   0		-	S	VP	2	S	VP	<u>-1</u>			۲.	_	S	A A	_	S	VP
gull  0 0 0 0.07 0 0.091 0 0 0.01  0 0 0.07 0 0 0.05  0 0 0.07 0 0 0.05  1 0 0.33 0 0.05 0 0.05  1 0 0.33 0.05 0 0 0.05  1 1  1 1 0 0.33 0.05  1 1 0 0 0 0.05  1 1 0 0 0 0.05  1 1 0 0 0 0.05  1 1 0 0 0 0.05  1 1 0 0 0 0.05  1 1 0 0 0 0.05  1 1 0 0 0 0.05  1 1 0 0 0 0.05  1 1 0 0 0 0.05  1 1 0 0 0 0.05  1 1 0 0 0 0.05  1 1 0 0 0 0.05  1 1 1 1 0 0 0 0.05  1 1 1 1 1 0 0 0 0.05  1 1 1 1 1 0 0 0 0.05  1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Sanderling				0	0	0.35					16.50	6.50	3.77	3.17	11.00	5.49
gull 0 0.007 0 0.011 0 0.001 0 0.001 0 0.001 0 0.001 0 0.001 0 0.001 0 0.001 0 0.001 0 0.001 0 0.002 0.17 0 0.17 0 0.00 0 0.002 0 0.002 0.17 0 0.003 0 0 0.002 0 0.002 0 0.002 0.17 0.17 0 0.003 0 0 0.002 0 0 0.003 0.17 0.17 0 0.003 0 0 0.003 0.17 0 0.003 0.17 0 0.003 0 0 0 0.003 0.17 0 0.003 0 0 0 0.003 0.17 0 0.003 0.17 0 0.003 0 0 0 0.003 0.17 0 0.003 0.17 0 0.003 0 0 0 0.003 0.003 0.17 0 0.003 0.003 0 0 0 0.003 0.17 0 0.003 0 0 0 0.003 0.17 0 0 0.003 0.003 0.17 0 0.003 0.003 0 0 0 0.003 0.17 0 0.003 0 0 0 0.003 0 0 0 0.003 0.17 0 0.003 0 0 0 0.003 0.17 0 0.003 0 0 0.003 0 0 0 0.003 0 0 0 0.003 0 0 0 0	Least sandpiper																
Common shipe         Giaveors-winged gull         0         0.01         0         0.01         0	Western sandpiper											0	0.50				
Clauscons-winged gall   Castacons-winged gall   Western jull   W	Common snipe																
Mestern full         0 <t< td=""><td>Glaucous-winged gull</td><td></td><td></td><td></td><td>0</td><td>0</td><td>0.01</td><td>0</td><td>0</td><td>0</td><td>10.</td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	Glaucous-winged gull				0	0	0.01	0	0	0	10.						
0 0.017 0.09 0 0.007 0.017 0.09 0 0.007 0.17 0 0 0 0.017 0 0 0 0.017 0 0 0 0.17 0 0 0 0.17 0 0 0 0.17 0 0 0 0.17 0 0 0 0.17 0 0 0 0.17 0 0 0 0 0.17 0 0 0 0 0.17 0 0 0 0 0.17 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Western Pull	0	0		0	0	0.03								0.17	0	0.02
1 0 0.17 0.09 0 0 0.07 0.17 0 0 0 0.017 0 0 0 0.17 0 0 0 0.17 0 0 0 0.18 0.17 0 0 0 0.18 0.18 0.05 0 0 0.06 0.19 0 0 0 0.19 0 0.17 0.17 0 0.17 0 0.17 0 0.18 0.05 0 0 0 0.002 0 0 0 0 0 0.03 0.17 0 0 0 0.03 0.17 0 0 0 0.03 0.17 0 0 0 0.03 0.17 0 0 0 0.03 0.17 0 0 0 0.03 0.17 0 0 0 0.03 0.17 0 0 0 0.03 0.17 0 0 0 0.03 0 0 0 0.03 0.17 0 0 0 0 0.03 0.17 0 0 0 0 0.03 0 0 0 0 0.03 0 0 0 0 0 0.03 0 0 0 0	Herring gull	0	0		0	0	0.08								0	0.17	0.01
0.33 0 0.05 0 0.16 0.17 0 0 0 0 0.17 0.17 0.17 0.17 0.17 0	California gull	0	0.17		0	0	0.07					0	0	0.05	0.17	0	0.05
0.17 0.53 0.05 0 0 0.002 0 0 0 0.09 0 0 0 0.17 0.53 0.05 0 0 0 0.02 0 0 0 0.03 0.17 0 0 0 0 2.65 0 0 0 0.002 0 0 0.001	Ring-billed gull	0.33	0		0	0	0.16	0.							0.17		0.48
0.17 0.33 0.05 0 0 0.02 0 0 0 0.09 0 0 0 0 0 0 0.03 0.17 0 0 0 0.03 0.17 0 0 0 0.03 0.17 0 0 0 0.04 0.05 0 0 0 0.05 0.05 0 0 0 0.05 0 0 0 0.06 0.06 0 0 0 0.07 0 0 0 0 0.09 0 0 0 0 0.09 0	Bonaparte's gull																
0.17 0.33 0.05 0 0 0.02 0 0 0.03 0.17 0 0 0 0.03 0.17 0 0 0 0.03 0 0.04 0 0.05 0 0 0.05 0 0 0.07 0 0 0 0.07 0	Caspian tern											0	0	60.0	0	0	0.02
0 0 0 2.65 0 0 0 0.01 0 0 0 0 0 0	Unidentified Laridae	0.17			0	0	0.03					0	0	0.03	0.17	0	0
0 0 0 2.65 0 0 0 0 0 0 0	Belted kingfisher	0.	0														
0 0 0 0.01	Common flicker																
1 chickadee 1 chickadee 2 chickadee bin thrush	Unidentified Pividae											0	0	2.65			
a chickadee  d chickadee  sen  en  thrush	Barn swallow																
J chickadee  sen  en  thrush	Сомпон тауен				0	0	0.05										
Black-tapped chickadee House wren Winter wren Bewick's wren American robin Swainson's thrush	Common grow							0	0	3	.01				0	0	0.04
House wren Winter wren Bewick's wren American robin Swainson's thrush	Black-capped chickadee																
Winter wren Bewick's wren American robin Swainson's thrush	House wren																
Bewick's wren American robin Swainson's thrush	Winter wren																
American robin Swaruson's thrush	Bewick's wren																
Swainson's thrush	American robin																
	Swainson's thrush																

Table A4 (Continued)

		IUPPL			IUPP			IUP			ITSP			ITS	
	H	20	Λb	_	S	VP	₽	S	ΛN	T	S	VP		S	VP
Golden-crowned kinglet						.,							2.50	0	0
Ruby-crowned kinglet													0.48	1.67	3.33
Water pipit	0	1.83	1.22	0	0	9.16									
Starling	0.21	0	0.14	0	0.17	0.12									
Yellow-rumped warbler															
Western meadowlark															
Brewer's blackbird															
Brown-headed cowbird				0	0	0.08									
House finch															
American goldfinch	0.83	0	0	. 0	0.17	0.15	0	0	0.29						
Savannah sparrow				0.27	0.17	0.41	0.55	0.50	0.41						
Song sparrow										0.17	0	0	0	1.17	1.99

Table A4 (Continued)

								-	-						1
		IMAP			IMA			SMAP			SMA			MNA	
	_	S	VP	-	S	VP	٢	S	VP	-	S	ΛÞ	۲	S	VP
Golden-crowned kinglet															
Ruby-crowned kinglet															
Water pipit	0	0.33 0.11	0.11	0	0.67 0.21	0.21				2.17		1.17 0.53			
Starling				0	3.50	8.54									
Yellow-rumped warbler															
Western meadowlark	0	0	0.28												
Brewer's blackbird															
Brown-headed cowbird															
House finch															
American goldfinch	0	0.67 0.50	0.50												
Savannah sparrow	0	0	0.22	0.44	0.17	0.11	0	0	0.65	0.44	0.44 1.33 0.87	0.87			
Song sparrow				0.83	0	0									

Table A4 (Concluded)

	VP	81 0
SBE	S	•
	<b>-</b>	•
	Λb	12 0
SBI	S	27 0
S	-	•
	VP	15 0 25 0 0 51 0 0 31
h.L.	S	17
SBIPL		
	-1	•
	ΛÞ	
181	T S V	
	Ţ	
	VP	
IBIP	T	
	٦	

Ruby-crowned kinglet
Mater pipit
Starling
Yellow-rumped warbler
Western meadowlark
Brewer's blackbird
Brown-headed combird
House finch
American goldfinch
Savannah sparrow

Golden-crowned kinglet

Song sparrow

(Continued)

Estimates of Bird Density by Transect, Station, and Variable Plot Methods by Study Area, Miller Sands, Oregon, November 1976

VP

		IUPPL.			IUPP			IUP			-	ITSP			ITS
	٦	S	d/	1	S	VP	-	S	VP	2.1		S	ΛÞ	-	S
Western grebe						••									
Horned grebe															
Double-crested cormorant															
Whistling swan	0	0	0.22												
Canada goose	0	0	0.31												
Mallard	0	0	0.08	0	0	0.01	0	0	0.36	99					
Pintail															
American pigeon															
Green-winged teal															
Lesser scaup				•											
Surf scoter															
Common merganser															
Unidentified Anatidae															
Marsh hawk															
Red-tailed hawk															
Merlin				0.17	0	0									
American kestrel															
Great blue heron															
Black-bellied plover															
Semipalmated plover															
Killdeer	0.17	0	0.19												
Greater yellowlegs															
Long-billed dowitcher															
Dunlin															

Table AS (Continued)

		IBIP			181			SBIPL			SBI			SBE	
	-	s	ΑÞ	<b>=</b>	S	VP	اء	S	Λh	:-	S	Λb	-	s	VP
Western grebe															
florned grebe															
Double-crested cormorant															
Whistling Swan															
Canada goose				0	0	0.03									
Mallard	0	0	0.04	0	0	0.43	0	0	0.01	0	0	0.04	0	0	0.01
Pintail				0	0	90.0				0	0	0.12			
American pigeon	0	0	0.11												
Green-winged teal													0	0.33	99.0
Lesser scaup				•											
Surf Scoter				0	0	0.08									
Common merganser				0	0	0.04	0	0	0.04	1.00	0	0	0	0	0.13
Unidentified Anatidae															
Marsh hawk															
Red-tailed hawk															
Merlin															
American kestrel															
Great blue heron															
Black-bellied plover				0	0	0.20									
Semipalmated plover	0	0.33	0.21												
Killdeer	0.37	0	0.00							0	0	0.09			
Greater yellowlegs															
Long-billed dowitcher															
Dunlin	1.67	0	0	0	0	1.46	10.83	10.83 15.33	9.95	0.50	0.17	0.26	0.83	0.83 39.67	7.92

(Continued)

Table A5 (Continued)

		IMAP			INA			SMAP			SMA			MAIA	
	-	S	ΛÞ	<b>⊢</b>	S	Νb	-	S	VP	T	S	VP	_	S	ΔΛ
Western grebe															
Horned grebe	0	0.17	0.03												
Double-crested cormorant															
Whistling swan	0	0	0.05												
Canada goose															
Mallard	0	0	0.01	0	0	0.05	0.08	0	0	1.67	0	0.03	0	0	1.09
Pintail													0	0	0.02
American pigeon	0	0	0.03							5.33	0.17	0.12	0	0	0.65
Green-winged teal	0	0	0.07	1.11	0	0	0	0	0.07				0	0	0.59
Lesser Scaup															
Surf scoter															
Common merganser	0	0	0.05	0	0	0.12				0	0	0.02			
Unidentified Anatidae													0	0	1.31
Narsh hawk															
Red-tailed hawk															
Merlin															
American kestrei	•														
Great blue heron	0	0	0.01	0	0.17	0.01							0	0	0.01
Black-bellied plover	,														
Semipalmated plover															
Killdeer															
Greater yellowlegs															
Long-billed dowitcher															
Dunlin	0	0	0.35	0	0	0.94	0	6.83	8.98	0	10.83 16.86	16.86	0	4.33	1.38

Table AS (Continued)

		IUPPL			IUPP			IUP			ITSP			ITS	
	_	S	ΛÞ	_	S	Α	=	S	VP	F	S	VP	-	S	VP
Sanderling															
Least sandpiper															
Western sandpiper															
Common snipe				1.39	0.17	0.19									
Unidentified Scolopacidae															
Glaucous-winged gull															
Western gull															
Herring gull	0	0	0.05												
California gull				•			0.45	0	0						
Ring-billed gull															
Bonaparte's gall															
Caspian tern															
Unidentified Laridae															
Belted kingfisher															
Common flicker	0	0	0.04				0	0	0.01						
Barn Swallow															
Common raven							0.17	0	0						
Common crow	0	0	0.03							0	0.50	1.18	0	0.17	0.15
Black-capped chickadee										1.56	1.67	2.98	0.44	1.83	3.65
House wren															
Winter Wren										1.17	0.83	1.77	0.58	0.50	0.59
Bewick's wren										0	0.17	0.15			
American robin															
Swainson's thrush															

Table A5 (Continued)

		IMAP			IMA			SMAP			SMA			NBIA	
	ب	S	ΑA	-	S	۸	ب	S	Λb	<u>-</u>	S	ΑÞ	اـ	S	VP
Sanderling															
Least sandpiper										0.98	0.50	0.16			
Western sandpiper				0	0.17	0.09				0	0.17	0.88	0	2.00	0.70
Common s ipe	3.39	0.33	0.10	1.13	0.17	0.03	1.98	0	0						
Unidentified Scolopacidae															
Glaucous-winged gull	0	0	0.01	0	0	0.01	0	0	0.04	0	0	0.08	0	0	0.02
Western gull	0	0	0.05	0	0	0.05	0	0	0.05	0	0	0.05	0	0	0.05
Herring gull	0	0	0.03										0	0.17	0.05
California gull				0.17	0	0.05	0	0	0.02				0	0	0.12
Ring-billed gull	0	0.17	0.03	•			0.83	0.17	0.21	0	0	0.02	0	0.33	0.07
Bonaparte's gull	0	0	0.03	0	0	0.03									
Caspian tern															
Unidentified Laridae	0.17	0	0.09	0	0.17	60.00	0	0	0.12				0.50	0.50	0.31
Belted kingfisher															
Common flicker															
Barn swallow															
Common faven															
Common crow	0	0	0.25	0	0	0.03									
Black-capped chickadee															
House wren															
Winter Wren															
Rewick's wren															
American robin															
Swainson's thrush															

(Continued)

Table AS (Continued)

						- maint			1			ITED			3.51	1
		-	***			Inph			1111			1611			CII	
				4/	<u>_</u>	S	VP	_	S	VP	-	S	VP	1	S	VP
		-	71													
olden-c	Golden-crowned kinglet										0.24 0	0	0	1.90	06.0 05.0 06.1	66.0
uby-cre	Ruby-crowned kinglet			11111	0	0	0.35									
Water pipit	ipit	0	=	/;				0	0.85	0.85 0.31						
Starling	30	0	=											2.22	0	0
ellow-	Yellow-rumped warbler															
estern	Western meadowlark															
rewer	Brewer's blackbird															
rown-h	eaded cowbird				0	8.00	5.02	0	0.01	0.07 0.50	1.04	1.04 2.50	8.84			
ouse f	9 House finch	0.17 #	=													
merica	American goldfinch				9	0.50	0.50 0.33									
avanna	Savannah sparrow													0	0.17	0.33
Song sparrow	arrow															

(Continued)

Table A5 (Continued)

	MAN	1		INA	A			SMAP			SNA			NEW	
	T	ΛÞ	<b>⊢</b> 1		S	ΛÞ	اء	S	Λħ	اء	S	VP	-	S	VP
Golden-crowned kinglet						••									
Ruby-crowned kinglet															
Water pipit						0.42	0	0	2.03						
Starling				,		!									
Yellow-rumped warbler															
Western meadowlark															
Brewer's blackbird															
Brown-headed cowbird															
House finch															
American goldfinch															
Savannah sparrow				33		0									٠
Song sparrow			5	2											

Table A5 (Continued)

		IBIP			181			SBIPL			SEL			SBE	
	-1	S	γP	-	S	άλ	٦.	S	VP		x	4.V	-	S	VP
Sanderling	0	0	0.05	0	0	. 60.0				3.67	0.81	90.1	0	0	0.92
Least sandpiper															
Western sandpiper							0	1.33	1.18	0	1.00	1.33	0	0	1.03
Common snipe										0	0.1.				
Unidentified Scolopacidae															
Glaucous-winged gull	0	0	0.01	0	0	0.01				0.22	0	0.05	0	0	0.04
Western gull										0	5	0.02	0	0	0.02
Herring gull	0	0.17	0.01	0	0	0.01				0	=	0.01			
California gull	0	0	0.07	. 0	0	0.05	0	0	0.05				0	0	0.09
Ring-billed gull													0	0	0.11
Bonaparte's gull				0	0	0.03							0	0	0.05
Caspian tern															
Unidentified Laridae	0	0.17	0.05	0	0	0.03				0	0	0.01	0	0	0.01
Belted kingfisher															
Common flicker															
Barn Swallow															
Common raven														,	;
Сошпоп сгом				0	0	0.01				0	c	0.03	6	0	0.01
Black-capped chickadee															
House wren															
Winter Wren															
Bewick's wren															
American robin															
Swainson's thrush															

Table A5 (Concluded)

	IBI	<u>a</u>		IBI			SBIPL			SBI			SBE	
	± 8	VP	٠	S	ΛÞ	<u>-</u>	S	VP	-	S	VP	_	S	VP
Golden-crowned kinglet					••									
Ruby-crowned kinglet														
Water pipit														
Starling														
Yellow-rumped warbler														
Western meadowlark														
Brewer's blackbird														

0.09

0.83 0

Brown-headed cowbird

American goldfinch Savannah sparrow Song sparrow

House finch

Estimates of Bird Density by Transect, Station, and Variable Plot Methods by Study Area, Miller Sands, Oregon, Persamber 1976

			TUPPL			IUPP			IUP			ITSP			ITS	
		_	s	Λħ	1	s	VP	<b>J</b>	S.	VP	1	s	41	L	S	VP
	Western grebe															
	Double-crested cormorant															
	Whistling swan															
	Canada goose	0	0	0.25												
	Snow goose				0	0	0.10									
	Mallard							0	0	0.04						
А	Pintail															
40	American Wigeon															
	American green-winged feal															
	Canvasback															
	Lesser scaup															
	Bufflehead															
	Common merganser															
	Red-breasted merganser															
	Ruddy Juck															
	Marsh hawk							0	0	0.03						
	Bald cagle															
	Great blue heron															
	Black-bellied plover															
	Semipalmated plover															
	Killdeer															
	Dunlin															
	Sanderling															
	Western Sandpiper															
	Common snipe				2.50		0.33 0.07									
						9)	(Continued)									

Labet M. (Continued)

	Ę	IMAP	dA	:	s :	Λb	T	S	Λh	F	SMA	VP	۲	MMA	. a
	.	,	:	-		1	1.			1		1	-		:
Western grebe															
Double-crested cormorant	0	0	0.05				9	9	0.08	<b>ə</b>	0	0.01			
Whistling swan										0	0	0.08	0	0	0.16
Canada goose															
Snow goose							,								
Mallard	0	0.17	0.01	0.33	=	0.33	0.33	0	0	0	0	0.01	0	0	0.38
Pintail										0	0	0.01	0	0	0.18
American wigeon	0	0	0.03	0	=	0.03				0	0	0.03	0	0	0.14
American green-winged teal	0	0	0.08	0	=	0.28							0.83	0	0.33
Canvasback										•		5			
Lesser scaup										0	0.17	0.21			
Bufflehead															
Common merganser													0	0	0.03
Red-breasted Merganser													0	0	0.08
Ruddy dick															
Narsh hawk															
Bald ougle															
Great blue heron	0.23	0	0.01	0	=	0.01				0	0	0.01	0	0	0.01
Black-bellied plover															
Semipalmated plover															
Killdeer							5								
Dunlin	0	4.83	2.05	2.17	17 11	3.51	7.30		1.3/		0.33	2.66	3.33	33.33	10.14
Sanderling										0	5	0.21			
Western sandpiper										0.56	0	0.13	ċ	0.50	0.13
Common snipe	1.04	0	0												

Table A6 (Continued)

		IBIP			181			SBIPL			SBI			SBE	
	T	s	ΛÞ	1	s	VP	<b>-</b>	s	4/	T	s	VP	T	s:	VP
									-						
Western grebe	0.18	0.17	0.01												
Double-crested cormorant				0	0	0.01	0	0.33	10.0				0	0.17	0.05
Whistling swan										•	o	0.03			
Canada goose										•	•				
Snow goose															
Mallard	1.33	0	0.31	0	0	0.24									
Pintail	0	0	0.05	0	0	0.03	0	0	0.01				0.17	0	0
American wigeon	0.33	0	0.03	0.67	0	0.04							0	0	0.02
American green-winged teal	3.50	0	0.87							0	c	0.26			
Canvasback															
Lesser scaup										•	c	0 12			
Bufflehead											:				
Common merganser							0.17	0	=				0.17	0	0.01
Red-breasted merganser															
Ruddy duck															
Marsh hawk															
Bald eagle															
Great blue heron												0 01			
Black-bellied plover															
Semipalmated plover															
Killdeer															
Dunlin	0	0	0.59	28.33	3.33	11.27	0	c	7	2.67		12.47	0	0	1.18
Sanderling				4.67	1.17	2.07				2.67	1.67	0.83	0.33	0.50	0.75
Western sandpiper										0		0.42			
Common stripe															

Table A6 (Continued)

T S WP				IUPT1.	1.			HUPP			IUP			ITSP	d:			ITS	
Clancous-winged gull			1	S		41	-	s	VP.	1	S	À	-	S		VP	-	s	VP
Mestern gull         Ring-billed gull           Ring-billed gull         Ring-billed gull           Reng-billed gull         Ring-billed gull           Black-legged kittivake         Black-legged kittivake           Unidentified Laridae         Betted kingfisher           Common flicker         Common flicker           Common flicker         Common crow           Common raven         0           Black-capped chickadee         0.01           Winter vera         8-15           Black-capped chickadee         0.06           Winter vera         3.33           American robin         0.07           Colden-cronned ringlet         2.50           Ruby-cronned ringle		Glaucous-winged gull					0	0	0.07										
Herring gull   California gull   Herring   Herrin		Western gull																	
Ring-billed gull  Wack gull  Black-legged Kittiwake  Blind-derified Laridae  Betted Kingfisher  Common flicker  Common flicker  Common flicker  Common flocker  C		Herring gull																	
Ring-billed gull   Ring-legged kittiwake   Ring-legged kittiwak		California gull																	
Mean gull         Mean gull           Beltck kingfisher         Common flicker           Common Flicker         Common Flicker           Common Flicker         0         0.03         0         0.11         0         0.17           Common Flicker         Common Flicker         0         0         0.11         0         0.17           Common Flicker         0         0         0         0         0         0         0         17           Buck-capped chickadee         0<		Ring-billed gull																	
Black-legged kittiwake   Bulack-legged kittiwake   Bulack-legged kittiwake   Bulack-legged kittiwake   Belted kingfisher   Common flicker   Common flicker   Common flicker   Common flicker   Common flicker   Common row   Com		Mew gull																	
Pack tanger		Black-legged kittiwake																	
Belted kingfisher       Common flicker         Common flicker       Downy woodpecker         Common raven       0       0.03       0       0.11       0       0.17         Black-capped chickadee       0       0.03       1.06       7.00       15.25       0.31       1.00         Winter wren       Winter wren       0.53       1.33       2.65       0.79       1.00         Bewick's wren       American robin       3.33       0.67       0.59       0       0.17         American robin       Golden-crowned ringlet       2.50       0.83       2.95       0       0.17         Kuby-crowned ringlet       0       0.47       2.50       4.97       0.28       2.25         Starling       0       0.47       1.11       2.50       4.97       0.50         Mestern meadowlark       1.00       0.75       0.75       0.83       0       0         Blouse finch       0       0.47       0       0.75       0.83       0       0       0	A4	Unidentified Laridae																	
Ladee  0 0 0.03  10.06 7.00 15.25 0.31 1.00  0.53 1.33 2.65 0.79 1.00  3.33 0.67 0.59 0.17  1.00  2.50 0.83 2.95  1.11 2.50 4.97 0.28 2.25  1.14  1.67 0.50		Belted kingfisher																	
Linglet  0 0 0.011 0 0.17  10.06 7.00 15.25 0.31 1.00  0.53 1.33 2.65 0.79 1.00  3.33 0.67 0.59 0 0.17  2.50 0.83 2.95  1.11 2.50 4.97 0.28 2.25  1.67 0.50  1.67 0.50		Common flicker																	
chickadee		Downy woodpecker																	
0 0 0.03  10.06 7.00 15.25 0.31 1.00  0.53 1.33 2.65 0.79 1.00  3.33 0.67 0.59 1.00  3.250 0.83 2.95  1.11 2.50 4.97 0.28 2.25  0 0.47  0 0 1.33 1.40  0.75 0.67 0.85 0.85 0.50		Common Faven																	
10.06 7.00 15.25 0.31 1.00 0.53 1.33 2.65 0.79 1.00 3.33 0.67 0.59 1.00 3.43 2.65 0.79 1.00 3.43 2.65 0.79 1.00 3.43 2.65 0.79 1.00 3.43 2.65 0.81 2.05 3.43 0.67 0.59 0.17 3.40 0.133 1.40 0.75 0.67 0.85 0.167 1.67		Common crow	0	0	0	.03							0	0	5	0.11	0	0.17	0.11
0.53 1.33 2.65 0.79 1.00  3.33 0.67 0.59 0 0.17  2.50 0.83 2.95  1.11 2.50 4.97 0.28 2.25  1.13 1.40  0 1.33 1.40  0.75 0.67 0.85 0.79 1.00		Black-capped chickadee											10.0			5.25	0.31	1.00	0.95
3.33 0.67 0.59 0 0.17 2.50 0.83 2.95 3.41 0.25 0.83 2.05 3.42 0.28 2.25 3.43 0.67 0.59 0 0.17 3.44 0 0.13 1.40 3.53 0.67 0.59 0 0.17		Winter Wren											0.5			3.65	0.79	1.00	1.99
2.50 0.83 2.95 1.11 2.50 4.97 0.28 2.25 1.13 1.40 0 0 1.33 1.40 0.75 0.67 0.85 0 1.67		Bewick's wren											3.3			0.59	0	0.17	0.15
2.50 0.83 2.95  1.11 2.50 4.97 0.28 2.25  1.13 1.40  0 1.33 1.40  0.75 0.67 0.85 0 1.67		American fobin																	
0 0 0 0.47  1.11 2.50 4.97 0.28 2.25  1.15 0.50  1.67 0.50		Golden-crowned ringlet											2.5			2.95			
0 0 0.47 1.67 0.50 0 1.33 1.40 0.75 0.67 0.85 0 1.67		Ruby-crowned ringlet											1.1			1.97	0.28	2.25	4.79
0 1.33 1.40 0.75 0.67 0.85 0 1.67 0.50		Starling	0	0	0	.47										•			
1.67 0.50 0 1.33 1.40 0.75 0.67 0.85 0 1.67		Western meadowlark																	
0 1.33 1.40 0.75 0.67 0.85 0 1.67		Rufous-sided towhee															1.67	0.50	
0.75 0.67 0.85 0 1.67		House finch					0	1.33											
		Song sparrow											0.7			0.85	0	1.67	2.12

Table A6 (Continued)

		IMAP			IMA				SMAP			SMA			MMA	
	_	S	4	<u>+1</u>	S		VP	-	S	VP	-	S	VP	٢	s	Δ
Glancous-winged oall								0	0	0.03				0	0	0.03
Western gull	0	0.17	0.01	0	0.17 0	9	0.04							0	0	0.01
Herring gull	0	0	0.05	0		0	0.05									
California gull	0	0	10.0											0	0	0.08
Ring-billed gull	0.23	0	0											0	0	0.31
Mew gull																
Black-legged kittiwake																
Unidentified Laridae	0	0	0.05	0	0.	0.17 0	0.02	0	0.17	0.08				0	0.00	0.03
Belted kingfisher	0	0	0.11													
Common flicker																
Downy woodpecker																
Common raven																
Common crow	0	0.33	0.03											0	0	0.07
Black-capped chickadee												,				
Winter Wren																
Bewick's wren																
American robin																
Golden-crowned kinglet																
Ruby-crowned kinglet																
Starling	0	o	0.05											0	0	0.07
Western meadowlark																
Rufous-sided towhee																
House finch																
Song sparrow				-	1.67 0		0									

Table A6 (Concluded)

		IBIP			181			SBIPL			SBI			SBE	
	H	s	VP	1	s	VP	-	S	VP	L	s	VP	1	S	VP
Glancous-winged eull	0.67	0	0	0	0	0.03	0	0	0.03	0	0 17	0 08	=	0 17	50 0
Western gull				0	0	0.01							,		
Herring gull				0	0	0.01				0	0	0.01	0	0	0.01
California gull	0	0	0.05	0	0	0.05	0	0	0.02				0	0	0.05
Ring-billed gull	0	0	0.03												
Mew gull															
Black-legged kittiwake															
Unidentified Laridae							0	0	0.01	0	0	0.01	0.17	0	0
Belted kingfisher				•											
Common flicker															
Downy woodpecker															
Common raven															
Contion crow										0	0	0.01			
Black-capped chickadee															
Winter wren															
Bewich's wren															
American robin												,			
Golden-crowned kinglet															
Ruby-crowned kinglet															
Starling															
Western meadowlark															
Rufous-sided towhee															
House finch						S.	0	2.67	0.61						
Song sparrow															

(Continued)

	1977
	January
	Oregon,
	Sands,
	Miller
	Area,
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	Hethods by
Table A7	md Variable Plot
	Station,
	by Transect,
	Density
	f Bird
	imates o
	Est

			IUPPI.			IUPP			IIIP			TTSP			SIL	
		Ξ	s	VP	1	s	Λh	£~	S	VP	<u>+</u>	s	VP	<b>-</b>	s	VP
	Western grebe															
	Double-crested cormorant															
	Whistling swan															
	Canada goose	0	0	0.25												
	Snow goose							0	0	1.66						
	Mallard															
	Pintail				0	0	1.70									
	American wigeon															
A4	American green-winged eal	0	0	0.05												
6	Canvasback															
	Lesser scaup				•											
	Bufflehead								`							
	Common merganser															
	Red-breasted merganser															
	Ruddy duck															
	Marsh hawk															
	Bald eagle															
	Great blue heron															
	Black-bellied plover	•														
	Semipalmated plover															
	Killdeer	0	0.17	80.0												
	Dunlin															
	Sanderling															
	Western sandpiper															
	Common snipe	0.42	0	0	0	0	0.04				2.17	0.17	8.29	1.45	0	0
	Glaucous-winged gull															

Table A7 (Continued)

T S WP T S S WP T S WP			IMAP			IMA			SMAP			SMA			MMIA	
Separatit : 0.17 0 0.04 : 0.02 : 0.12		-	S	VP	-	S	V.	_	S	VP	<u>-</u>	S	Ν	<b>⊢</b>	s	VP
Sormorant  O.17 O. 0.04	Western grebe							0	0	0.02						
10.17 0 0.04	Double-crested cormorant							0 :	0	0.12						
10.17 0 0.04	Whistling swan															
10.17 0 0.04	Canada goose															
10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Snow goose															
inged teal 0.17 0 0.03 0 0.06 0 0.01 0.01 0.01 0 0.03 0 0.03 0 0  inged teal 0.17 0 0 0.03 0 0 0.04 0 0.04 0 0.05 0 0.03 0 0.03 0 0.03 0 0  inged teal 0.17 0.03 0 0.05 0 0.04 0 0.05 0 0.05 0 0.03 0 0.03 1.01 0 0  inged teal 0.17 0.03 0 0.05 0 0.05 0 0.07 0.00 0 0.03 1.01 0 0 0.03 1.01 0.05 0 0.03 0 0.03  inged teal 0.17 0.33 0 0 0.05 0 0.041 0.00 0 0 0.01 1.37 0 0.03 0 0	Mallard	0.17	0	0.04				0	0.17	0.01	0	0	0.05	0	0	0.08
ringed teal 0.17 0 0.03 0 0 0.04 0 0.04 0 0 0 0 0.03 1.01 0 0 0.33 3 1.01 0 0 0.33 1.01 0 0 0.33 1.01 0 0 0.33 0 0 0.33 0 0 0.33 0 0 0.33 0 0 0.33 0 0 0.33 0 0 0.33 0 0 0.33 0 0 0.33 0 0 0.33 0 0 0.33 0 0 0.33 0 0 0.33 0 0 0.33 0 0 0 0	Pintail				0	0	0.02	0	0.17	0.01	0	0	0.03	0	0	1.52
Particle From From From From From From From From	American Wigeon				0	0	0.01				0	0	0.03	0	0	0.08
ty θ θ σ σ σ σ σ σ σ σ σ σ σ σ σ σ σ σ σ	American green-winged teal	0.17	0	0.03	0	0	0.65	0	0	0.03	0	0.33	1.01	0	0.33	0.31
purser  dumerganser  heron  beron  ca plover  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Canvasback															
panser ad merganser  cla merganser  cla merganser  cla merganser  cla merganser  cla merganser  cla plover  cla pl	Lesser scaup															
panser d merganser of the segment of	Bufflehead	0.33	0	0	0	0	.0.07									
heron heron led plover d plover  0 0 0.05 0.83 0.17 0.02  2.00 26.83 7.14 2.67 3.67 0.90 0 2.00 1.37 1.00 0 0.42 0 3.00  dpiper  0 3.33 1.06  0.42 0.17 0.33  0 0 0 0.01	Common merganser							0	0	0.03						
heron sed plover of 2.00 26.83 7.14 2.67 3.67 0.90 0 2.00 1.37 1.00 0 0.42 0 3.00 0.37 0 0.37 0 0.42 0.17 0.33 0 0.33 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Red-breasted Merganser															
0 0 0 0.65 0.83 0.17 0.02	Ruddy duck															
0 0 0 0.65 0.83 0.17 0.02 2.00 26.83 7.14 2.67 3.67 0.90 0 2.00 1.37 1.00 0 0.42 0 3.00 0 3.33 1.06 0.42 0.17 0.33 0 0 0 0 0.01	Marsh hawk															
0 0 0 0.05 0.83 0.17 0.02 2.00 26.83 7.14 2.67 3.67 0.90 0 2.00 1.37 1.00 0 0.42 0 3.00 0 3.33 1.06 0.42 0.17 0.33 0 0 0 0 0.01	Bald cagle															
0 0 0 0.05 0.83 0.17 0.02 2.00 20.83 7.14 2.67 3.67 0.90 0 2.00 1.37 1.00 0 0.42 0 3.00 0 3.33 1.06 0.42 0.17 0.33 0 0 0 0 0.01	Great blue heron	,														
0 0 0 0.65 0.83 0.17 0.02 2.00 26.83 7.14 2.67 3.67 0.90 0 2.00 1.37 1.00 0 0.42 0 3.00 0 3.33 1.06 0.42 0.17 0.33 0 0 0 0 0.01	Black-bellied plover															
0     0     0.05     0.83     0.17     0.02     .       2.00     26.83     7.14     2.67     3.67     0.90     0     2.00     1.37     1.00     0     0.42     0     3.00       0     3.33     1.06       0.42     0.17     0.33         0     0     0     0     0     0     0     0     0	Semipalmated plover															
2.00     26.83     7.14     2.67     3.67     0.90     0     2.00     1.37     1.00     0     0.42     0     3.00       0     3.33     1.06       0.42     0.17     0.33       0     0     0     0.01	Killdeer	0	0	0.05	0.83	0.17	0.05							0	0	0.12
0 3.33 1.06 1.33 0 0.37 0.42 0.17 0.33 0 0 0 0 0 0 0 0	Dunlin	2.00		7.14	2.67	3.67	06.0	0	7.00	1.37	1.00	0	0.42	0	3.00	4.20
0.42 0.17 0.33 0 0 0 0.01 0 0	Sanderling	0	3.33	1.06							1.33	0	0.37			
0.42 0.17 0.33 0 0 0 0.01 0 0 0	Western sandpiper															
0 0 0.01 0 0 0	Common snipe	0.42	0.17	0.33												
	Glaucous-winged gull							0	0	0.01				0	0	0.03

Table A7 (Continued)

		181P			181			SBIPL			SBI			SBE	
	۲	S	Λb	ب	s	γP	1	s	VP	1	s	٧٩	-	S	d\
			}												
Western grebe						••									0.03
Double-crested cormorant	0	0	0.05												
Whistling swan															
Canada goose															
Snow goose															
Mallard	0	0	0.07	0	0	0.03									•
Pintail	0	0	0.01	0	0	0.05	0	0	0.02	0	0	0.15	0	0	0.05
American wigeon	0.33	0	0.08												
American green-winged teal	0	2.50	1.44				0	0	0.02	0	0	9.03	0	0	0.05
Canvasback															
Lesser scaup															
Bufflehead															
Common merganser				0	0	0.01				0	0	0.11			
Red-breasted merganser															
Ruddy duck										0	0	0.00			
Marsh hawk															
Bald eagle				0	0	0.01									
Great blue heron															
Black-bellied plover															
Semipalmated plover	0.83	1.00	0.53												
Killdeer	1.33	1.00	1.11	0	0.17	0.07									
Dunlin							7.67	7.67 18.50	4.76	2.00	0.83	1.65			
Sanderling										1.00	0	0.08			
Western sandpiper															
Common snipe															1
Glaucous-winged gull	0.33	0	80.0	0	0	0.03									

(Continued)

Table A7 (Continued)

		IUPPL			IUPP			1	IUP			ITSP			ITS	
	T	S	ΛÞ	_	S	d /	-,	T	S	VP	T	s	VP	_	s	VP
Western gull	0	0	0.03													
Herring gull							0		0	0.05						
California gull																
Ring-billed gull																
Mew gull																
Black-legged kittiwake																
Unidentified Laridae																
Belted kingfisher																
Common flicker	0	0	0.03								0	0.17	0.29	0	0.17	0.15
Downy woodpecker																
Common raven				•												
Common crow	0	0	0.10	0	0	0.02					0	0	0.32			
Black-capped chickadee											2.20	2.00	2.98	0	1.67	2.98
Winter wren											0	0.33	0.33	0.79	0.33	99.0
Bewick's wren											. 0	0.33	0.29	0	0.67	0.59
American robin																
Golden-crowned ringlet				0	0.17	0.33										
Ruby-crowned ringlet											0.28	0.17	0.33	0	0.50	66.0
Starling	0	0	0.17													
Western meadowlark				0	0.17	0.29										
Rufous-sided towhee																
House finch																
Song sparrow											3.23	1.83	2.33	0.25	1.17	1.49

Table A7 (Continued)

		IMAP			IMA			S	SMAP			SMA			NIMA	
	-	s	ΛÞ	Ç.	S	VP	,-	-	s	VP	1	s	VP	_	s	VP
							1									
Western gull	0	0	0.03				0		0	0.01				0.83	0	0
Herring gull				0	0	0.05	0 :		0	0.12	0.17	0	0.02	0.17	0	0
California gull	0	0	0.04													
Ring-billed gull											0	0	0.01			
Mew gull																
Black-legged kittiwake																
Unidentified Laridae														0	0	0.05
Belted kingfisher																
Common flicker																
Downy Woodpecker																
Common raven																
Common c FOW	0	0	0.24				0	0.17	0	0.05	0.17	0	0.16	0	0	0.08
Black-capped chickadee																
Winter wren																
Bewick's wren																
American robin																
Golden-crowned kinglet																
Ruby-crowned kinglet																
Starling											0	0	0.08	0	0.17	0.26
Western meadowlark																
Rufous-sided towhee																
House Finch																
Song sparrow				1.67	0 4	0										

Table A7 (Concluded)

		181			181		S	SBIPL			SBI			SBE	
	-	S	VP	-	s	VP	Ţ.	S	VP	1	S	VP	<b>-</b>	s	VP
Western gull	0	0	0.01	0	0	0.05				0	0.17	0.17 0.03	0	0	0.03
Herring gull	0	0	0.03	0	0.17					0	0	0.09	0	0	0.12
California gull	0	0	0.09	0	0	0.09				0	0	0.02	0	0	0.05
Ring-billed gull				0	0	0.01							0	0	0.01
Mew ull															
Black-legged kittiwake															
Unidentified Laridae	0.17	0	0										0	0	0.01
Belted kingfisher															
Common flicker															
flowny woodpecker															
Common raven															
Common crow	0	0	0.03	0	0	0.02				0	0	0.05	0	0	0.01
Black-capped chickadee															
Winter wren															
Bewick's wren															
American robin															
Golden-crowned ringlet															
Ruby-crowned ringlet															
Starling	0.33	0	0.15	0	0	0.52							0	0	0.74
Western meadowlark															
Rufous-sided towhee															
House finch															
Song sparrow															

(Continued)

	77
	197
	February
	Oregon,
	Sands,
	Miller
	y Area,
	by Stud
	ethods
A8	e Plot M
Table A8	and Variable
	and
	Station, an
	fransect,
	by.
	Density
	f Bird
	tes o
	Estimat

			IUPPL			IUPP	2			IUP			ITSP			ITS	
		=	s	VP	1	S		VP	T	s	VP	-	S	VP	-	S	VP
	Western grebe																
	Double-crested cormorant																
	Whistling swan																
	Canada goose	0	0	0.28													
	Snow goose																
	Mallard											0	0.33	0.87			
	Pintail																
Δ5	American wigeon																
2	American green-winged teal				0	0	0	0.02									
	Canvasback																
	Lesser scaup																
	Bufflehead																
	Common merganser				0	0	ن	0.03									
	Red-breasted merganser																
	Ruddy duck																
	Marsh hawk								0	0	0.05						
	Bald eagle																
	Great blue heron	`															
	Black-bellied plover																
	Semipalmated plover																
	Killdeer	0	0	0.01													
	Dunlin																
	Sanderling																
	Western sandpiper																
	Common snipe				1.67	0 ,	0		0	0	0.04				1.45	0	0
	Glaucous-winged gull																

		IMAP			IMA			SMAP			SMA			MRA	
	1	S	VP	-	S	VP	, <del>(-</del>	S	VP	-	S	VP	1	S	VP
Western grebe															
Double-crested cormorant	0	0	0.47												
Whistling swan															
Canada goose															
Snow goose															
Mallard										0	0	0.05	٥	0	0.04
Pintail													0	0	0.18
American wigeon										0	0	0.01	0	0	0.04
American green-winged teal	0	0	0.03							0	0.33	0.89	0	0	0.08
Canvasback				٠			0	0	0.05						
Lesser scaup															
Bufflehead	0.50	0	0.03	0	0	0.07							0	0	0.05
Common merganser				0	0	90.0							00	00	0.03
Red-breasted merganser													•	,	2
Ruddy duck															
Marsh hawk															
Bald eagle															
Great blue heron													0	0	0.01
Black-bellied plover															
Semipalmated plover															
Killdeer	0	0.33	0.09												
Dunlin										2.17	7	12.10			
Sanderling										0	0	1.96			
Western sandpiper										11.11	0	0			
Common snipe	0	0.17	0.33				0.21	0	0						
Glaucous-winged gull					,										
					2	(Continued)	_								

Table A8 (Continued)

		IBIP			181			SBIPL			SBI			SBE	
	-	S	4	ا ء	S	d A	-	S	VP	1	s	VP	<b>F</b>	s	VP
Western grebe						••	0	0	0.04						
Double-crested cormorant				0	0	0.65									
Whistling swan															
Canada goose															
Snow goose															
Mallard															
Pintail	0.17	0	0.45							0	0	0.01			
American wigeon	0	0	0.03							0.17	0	0			
American green-winged teal	0	0	0.05	0	0	0.19	0	0	0.02	0.17	0	1.87	0	o	0.21
Canvasback															
Lesser scamp															
Bufflehead	0	0	0.15												
Common Merganser	0	0	0.48	0.17	0	0.25	0.50	0	0	0	0.33	0.05			
Red-breasted Merganser	0	0	0.01	0	0	0.03									
Ruddy duck															
Marsh hawk													0	0	0.01
Bald eagle	0.18	0	0	0	0	0.01									
Great blue heron															
Black-bellied plover				0	0.50	66.0									
Semipalmated plover	0	1.00	0.39									,			
Killdeer															
Dunlin	1.00	4.67	0.83				0	0	2.36	0	0.50	4.13	0	0	0.05
Sanderling	0	3.33	1.66										0	0	0.17
Western sandpiper															
Common snipe															

Table A8 (Continued)

		IUPP1.			100			IUP			ITSP			ITS	
	1	S	VP	L	S	ΛÞ	-	s	VP	<u>+</u>	s	VP	<b>⊢</b>	s	VP
Western gull						••									
Herring gull															
California gull							0	0	60.0						
Ring-billed gull															
Mew gull															
Black-legged kittiwake															
Unidentified Laridae															
Belted kingfisher															
Common flicker										0	0.33	0.29			
Downy woodpecker										1.67	0	0.15			
Common raven							0	0	0.09						
Сопшоп стом	0	0	0.01	0	0	90.0							0.50	0.33	0.48
Black-capped chickadee										2.20	2.17	3/65	0.94	1.00	1.66
Winter wren										1.06	1.33	1.99	0.79	1.17	2.32
Bewick's wren										0	0.33	0.29	0	0.33	0.44
American robin										0	0	0.59			
Golden-crowned kinglet															
Ruby-crowned kinglet										1.67	1.83	2.65	0.28	0.33	0.00
Starling				0	0	0.33									
Western meadowlark															
Rutous-sided towhee															
House finch															
Song sparrow										2.24	2.00	2.55	0.75	1.50	1.91

A55

Table A8 (Continued)

		IMAP			IMA			SMAP			SNA			NBIA	
	-	S	VP	<u>+</u>	S	d A	_	s	d /	_	s	d	-	S	VP
Western gull	0.17	0	0.01	0	0	0.01	0	0	0.05	0	0	0.01	0.83	0.67	0.17
Herring gull				0	0.17		0	0	0.09	0.17	0	0.17	0.17	0.83	0.42
California gull	0.21	0	0.08	0	0	0.01	0	0.17	0.08	0.21	0	0.05	0	0.33	0.08
Ring-billed ull	0	0	0.01							0	0	0.08			
New gull	0.72	0	0	0.54	0	0.42	0	0	0.08	0	0.50	4.08	0	0.67	1.01
Black-legged kittiwake							0	0	0.03				0	0	0.03
Unidentified Laridae							0	0	0.03	0	0	60.0	0	0	0.05
Belted kingfisher															
Common flicker															
Downy woodpecker				٠											
Common raven															
Common crow	0	0	0.11	0	0.17	0.04				0	0	90.0	0	0	0.04
Black-capped chickadee															
Winter wren															
Bewick's wren															
American robin															
Golden-crowned kinglet															
Ruby-crowned kinglet	,														
Starling	0	0.17	0.05	0	0.17	0.09				0	0	0.07			
Western meadowlark															
Rufous-sided towhee															
House finch															
Song sparrow				0	0.17	5.31									

Table A8 (Concluded)

		IBIP			181		S	SBIPL			SB1			SBE	1
	-	S	VP	<u>-</u>	s	VP	_	S	VP	<u>_</u>	s	VP	-	s	VP
														,	
Glaucous-winged gull						•				0.33	0	0	0	0	0.03
Western Sull	0.17	0	0.02	0	0.17	0.27	0.17	0	0.03	0	0.17	0.07	0	0	0.08
Herring Sull	0.33	0	0.07	0.50	0.33	0.33 0.29				0.33	0	0.25	0	0.17	0.33
California gull				0.33	0.17	0.17 0.02	0	0	0.08	0	0	0.17	0	0	0.07
Ring-billed gull															
New gull	0	0	0.05	0.50	1.50	0.54	0.17	0.17	0.12	0	0	1.51	0.50	0.17	0.40
Black-Tegged kittiwake															
Unidentified Laridae				0.33	0	0.64	0	0	0.01	0	0	0.01	0	0	0.01
Belted kingfisher															
Common flicker															
Downy woodpecker															
Сонию гауен															
Common crow	0	0	0.05							0	0	0.16	0	0	0.03
Black-capped chickadee															
Winter Wren															
Bewick's wren															
American Fobin															
Golden-crowned kinglet															
Ruby-crowned kinglet															
Starling															
Western meadowlark															
Rufous-sided towhee															
House finch															
Song sparrow															

(Continued)

Estimates of Bird Density by Transect, Station, and Variable Plot Hethods by Study Area, Miller Sands, Oregon, March 1977

		TUPPL			IMPP			IIIP			ITSP			ITS	-
4			-	ŧ		9	ŧ	٥	977	E	0	9,1	ŧ	o	9/1
	-	S	AA	-	2	>	-	0	A	-	0	4	-	0	>
Common loon						••									
Unidentified Gaviidae															
Horned grebe															
Unidentified Podicipedidae															
Double-crested cormorant															
Canada goose															
Mallard	0	0.33	0.05	0	0	0.05	0	0	0.05	1.90	0.33	0.29	0	0.33	0.29
Pintail															
American wigeon				٠											
Blue-winged teal															
Cinnamon teal															
American green-winged teal													3.89	0	0
Greater scaup							0	0	0.07						
Lesser scaup															
Common merganser															
Red-breasted merganser															
Unidentified Anatidae	•														
Bald eagle				0	0	0.05				0.56	0	0			
American kestrel															
Great blue heron															
Black-bellied plover															
Semipalmated plover															
Killdeer															
Greater yellowlegs															

Table A9 (Continued)

		INAP			INA			SMAP			SMA			MNIA	1
	ī	s	d/		s	Λb	F	s	VP	-	s	VP	<u>-</u>	S	VP
										*					
Common loon						••									
Unidentified Gaviidae															
Horned grebe															
Unidentified Podicipedidae															
Double-crested cormorant															
Canada goose				0	0	0.05				0	0	90.0			
Mallard				0	0	0.03				0	0	0.00	0	0	0.08
Pintail													0	0	0.07
American Wigeon										0	0	0.05	О	0.08	0
Blue-winged teal				٠											
Cinnamon teal														•	
American green-winged teal				0.21	2.17	0.50									
Greater scaup															
Lesser scaup															
Common merganser				0.17	0	0	0	0	0.11						
Red-breasted merganser													0	0	0.00
Unidentified Anatidae															
Bald eagle	•														
American kestrel															
Great Blue heron	0	0	0.01									٠	0	0	0.05
Black-bellied plover							0	0	0.05						
Semipalmated plover															
Killdeer	0.94	0.50	0.11				0.56	0	0.07						
Greater yellowlegs															

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Table A9 (Continued)

		181P			IBI			SBIPL			SBI			SBE	
	-	S	ΑÞ	-	S	dA	=	S	VP	-	S	VP	<u>-</u>	S	VP
Common 100n						••									
Unidentified Gaviidae															
Horned grebe	0	0	0.05												
Unidentified Podicipedidae															
Double-crested cormorant	0.18	0	0.12	0.18	0	0									
Canada goose				0	0	0.01				0	0	0.01			
Mallard	0	0.33													
Pintail	0	0	0.03												
American wigeon	0	0	0.08	•											
Blue-winged teal															
Cinnamon teal														,	
American green-winged teal	0	0	0.04	0	0	0.02				0	0	3.05	0 9		0.04
Greater scaup													0	5	0.17
Lesser scaup													,	•	20.0
Common merganser	0	0	0.24	0	0	0.09							0	0	0.03
Red-breasted merganser	0	0	0.01	0	0	0.11									
Unidentified Anatidae															
Bald eagle							0	0 .	0.05						
American kestrel										•	•	. 5			
Great blue heron										>		0.01			
Black-bellied plover															
Semipalmated plover															
Killdeer															
Greater yellowlegs															

Table A9 (Continued)

	IUPPL		IUPP			III			ITSP			ITS	
	T S VP	<u>-</u>	S	VP	_	S	VP	<b>:</b>	S	ΛÞ	-	s	VP
Dunlin													
Sanderling													
Least sandpiper													
Western sandpiper													
Common snipe		0.48	0	0	0.24	0	0						
Unidentified Scolopacidae													
Glaucous-winged gull													
Western gull		0	0	0.05	0	0	0.02				0	0 17	0 50
Herring gull											,	;	5.
California gull													
Ring-billed gull													
Mew gull													
Black-legged kittiwake													
Bonaparte's gull													
Caspian tern													
Unidentified Laridae													
Rufous hummingbird													
Unidentified Trochilidae													
Common flicker		0	0	0.09									
Downy woodpecker								0.17	0	0.21			
Unidentified Picidae													
Barn swallow													
Cliff swallow													
Violet-green swallow													

Table A9 (Continued)

			IMAP			INA			SMAP			SMA			NINA	
		-	S	ΑΛ	-	S	ΛÞ	=	S	VP	-	S	VP	٦	S	VP
	Dunlin						•							5.00		
	Sanderling															
	Least Sandpiper															
	Western sandpiper	0	0.17	0.02				1.83	17.50	15.60						
	Common saipe	1.39	0	0				0	0	0.08						
	Unidentified Scolopacidae															
	Glaucous-winged gull	0	0	0.05	0	0	0.02				0	0.	0.05	0	0	0.02
A6	Western gull	0	0.17	0.12	0	0.17	0.05	0	0.17	0.14	0	0	0.05	0.17	0	0.07
	Herring gull	0.17	0.50	0.28	0.17	0.67	0.73	0	0	0.28	0.17	0	0.02	0	0	0.38
	California gull	0	0	0.00	. 0	0.17	0.09	0	0	90.0	0	0	0.16	0.33	0	0.00
	Ring-billed gull															
	Mew gull	0	1.50	0.33	0.17	1.17	0.38	0.17	0.67	0.75	0.67	0	0.54	0.67	0.50	0.45
	Black-legged kittiwake															
	Bonaparte's gull															
	Caspian tern															
	Unidentified Laridae	0 .	0	0.08	0.17	0	0.12	0	0.50	0.15	0	0	0.03	0	0	3.87
	Rufous hummingbird															
	Unidentified Trochilidae															
	Common flicker															
	Downy woodpecker															
	Unidentified Picidae															
	Barn swallow															
	Cliff swallow															
	Violet-green swallow															

Table A9 (Continued)

		IBIP			181		6	SBIPL			SBI			SBE	1
		S	Λb	1	S	d√	1	S	ΛÞ	+	S	VP	<b>E</b>	S	VP
Dunlin				18.83	9.83	6.32							0	21.50	6.11
Sanderling				1.67	0	0.80									
Least sandpiper															
Western sandpiper															
Common snipe															
Unidentified Scolopacidae															
Glaucous-winged gull				0	0	0.01	0	0	0.01	0	0	0.01	0	0.17	0.03
Western gull	0.17	0	0.05	0	0.33	0.12	0.02	0.17	0.28				0.17	0	0.52
Herring gull	0	0	0.07	0.33	0.50	0.17	0.33	1.00	0.40	0.50	0.67	0.21	0.50	1.33	0.40
California gull	0	0	0.03		0	0.09	0.17	0	0.09	0.17	0	0.07	0.33	0.33	0.09
Ring-billed gull															
Mew guill	0.33	1.00	0.38	0	0.50	60.0	3.33	3.50	1.91	2.00	1.50	1.25	1.00	0.67	0.80
Black-legged kittiwake	0	0	0.05				0	1.00	0.47	0.67	0	0.19	0	1,00	0.45
Bonaparte's gull															
Caspian tern															
Unidentified Laridae	0	0	0.03	0	0	0.04	1.00	2.00	0.00	0.33	0	1.64	0.67	0.17	0.48
Rufous hammingbird															
Unidentified Trochilidae															
Common flicker															
Downy woodpecker															
Unidentified Picidae															
Barn swallow															
Cliff swallow															
Violet-green swallow										0	0	0.11			

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Table A9 (Continued)

		IUPPL			IUPP			IUP			ITSP			ITS	
	=	S	VP	ب	S	ΥÞ	-	S	ΛÞ	_	S	VP	-	s	VP
Tree swallow						٠									
Rough-winged swallow															
Unidentified Hirundinidae															
Common Faven															
Common crow	0	0	0.12	0	0	0.03	0	0	0.05	0	1.50	66.0	0.37	2.83	1.74
Black-capped chickadee										1.67	2.17	2.33	0	1.67	1.70
Winter wren										0.42	0.67	0.59	0	1.17	1.03
Bewick's wren										0	0.33	0.29	1.67	0.33	0.29
American robin	0	0	0.16	0	0.17	0.21				0	0.17	0.08	0.17	0.33	0.33
Ruby-crowned kinglet				•						0.24	0.17	0.17	0.24	0.50	0.25
Water Pipit															
Starling							0	0	0.05						
Orange-crowned warbler															
Yellow warbler															
Wilson's warbler															
Red-winged blackbird													0	0.17	5.31
Brown-headed cowbird															
American Boldfinch															
Savannah Sparrow															
Dark-eyed junco													0	0.33	99.0
White-crowned sparrow															
Golden-crowned sparrow															
Song sparrow										0	2.00	2.06	0.33	1.00	0.88

		The state of			1100			CMAD			1				
		INT			INA			SMAP			SMA			NIMA	
		S	ΔŅ	-	S	VP	-	S	ΛÞ	1	S	VP	_	S	VP
Tree swallow	0	0.50	0.64			••									
Rough-winged swallow															
Unidentified Hirundinidae															
Common Faven													0	0	0.01
Common crow	0	0	0.04	0	0	0.13	0	0	0.05	0	0	0.07	0	0	0.21
Black-capped chickadee															
Winter wren															
Bewick's wren															
American robin															
Ruby-crowned kinglet				•											
Water Pipit															
Starling															
Orange-crowned warbler															
Yellow Warbler															
Wilson's warbler															
Red-winged blackbird															
Brown-headed cowbird															
American goldfinch	-														
Savannah sparrow															
Dark-eyed junco															
White-crowned sparrow															
Colden-crowned sparrow															
Song sparrow				0.83	0.17	0.59									

Table A9 (Concluded)

			1819			IBI			SBIPL			SBI		SBE
		-	s	VP	-	S	VP		S	VP	F	S	ΛÞ	-
	Tree swallow						••							
	Rough-winged swallow													
	Unidentified Hirundinidae													
	Common raven													
	Common crow	0	0	0.03	0	0	90.0	0	0.17	0.02	0	0	0.37 0	
	Black-capped chickadee													
	Winter wren													
166	Bewick's Wren													
	American robin													
	Ruby-crowned kinglet				•									
	Water pipit													
	Starling													
	Orange-crowned warbler										•			
	Yellow warbler													
	Wilson's warbler													
	Red-winged blackbird													
	Brown-headed cowbird													
	American goldfinch	•												
	Savannah sparrow													
	Dark-eyed junco													
	White-crowned sparrow													
	Golden-crowned sparrow													
	Song sparrow													

0.02

VP

(Continued)

Table A10
Estimates of Bird Density by Transect, Station, and Variable Plot Methods by Study Area, Miller Sands, Oregon, April 1977

		IUPPL			IUPP			1016			ITSP			ITS	
	-	n	VP	٤	s)	ΛÞ	-	S	VP	-	s	Αh	-	s	ΑV
Common loon						••									
Unidentified Gaviidae															
Horned grebe															
Unidentified Podicipedidae															
Double-crested cormorant															
Canada goose															
Mallard	0.50	0	0.21	0	0	0.09				0.24	0	. 0	0.95	0	0
Pintail															
American wigeon															
Blue-winged teal															
Cinnamon teal															
American green-winged teal													0	0.17	7
Greater scaup															:
Lesser scaup															
Common merganser															
Red-breasted merganser															
Bald cagle	0	0	0.03												
American kestrel															
Great blue heron															
Black-bellied plover															
Semipalmated plover															
Killdeer	0.17	0.17	0.13												
Greater yellowlegs															
Dunlin															

Table Al0 (Continued)

		IMAP			IMA			SMAP			SMA			MALA	
	£	S	VP	T	S	ΛÞ	-	S	VP	T	S	VP.	Ŧ	S	VP
Common loon							0	0	0.02						
Unidentified Gaviidae										0.33	0	0.07			
Horned grebe															
Unidentified Podicipedidae															
Double-crested cormorant													0	0	0.01
Canada goose							0	0	0.02						
Mallard	0	0.33	0.05	0	0	60.0	0	0	0.05				0	0	60.0
Pintail															
American wigeon													0	0	0.05
Blue-winged teal															
Cinnamon teal	0	0	0.07	0	0.67	0.18									
American green-winged teal	0	0	0.21	0	1.17	0.61	0.42	0	0.14	0	0	0.33	0	0	1.84
Greater scaup															
Lesser scaup							0	0	0.17						
Common merganser															
Red-breasted merganser				0	0.33	0.03	0	0	0.03	0	0	0.03			
Bald cagle							0	0	0.03						
American kestrel															
Great blue heron															
Black-bellied plover				0.23	0.33	0.17	0	0.17	60.0				c	0	0.05
Semipalmated plover															
Killdeer	0.37	0	0.07				0	0	0.04				0	0.17	0.04
Greater yellowlegs	0.42	0	0												
Duntin	0.50	0	0	14.83	11.83 7.37	7.37	72.33	25.67	12.25	8.33	8.33	2.76	4.33	8.67	4.67

Table AlO (Continued)

		1812			181			SBIPL			SBI			SBE	
	-	S	VP	<u>-</u>	S	d A	<b>←</b>	S	VP	<u>-</u>	S	VP	<b>-</b>	S	d A
Common Joon				0	0	0.04							0.33	0	0.01
Unidentified Gaviidae										0	0	0.08			
Horned grebe													0	0	0.03
Unidentified Podicipedidae															
Double-crested cormorant															
Canada goose															
Mallard	0	0	0.05												
Pintail				0	0	0.03									
American wigeon				•						0	0	0.05			
Blue-winged teal															
Cinnamon teal															
American green-winged teal							0	0	0.01	0	0	0.50			
Greater scaup				0	0	0.10									
Lesser scaup							0	0	0.42						
Common merganser										0	0	0.02			
Red-breasted merganser				0	0	0.01	0	0	0.01						
Bald eagle													0	0	0.05
American kestrel										0	0	0.08			
Great blue heron															
Black-bellied plover		•		0.67	0	0.04				0	0	0.03	0	0	0.01
Semipalmated plover	0.6/	0	0.09												
Killdeer															
Greater yellowlegs										0	0	0.02	0	0.33	0.05
Dunlin	5.83	0	0.83	8.33	3.33	2.12	0	0	0.59	20.33	10.83	12.07	5.33	25.50	7.03

Table AlO (Continued)

		IUPPL			IUPP				IUP			ITSP			LIS	
	7	S	VP	1	S	VP	اء	-	S	VP	-	S	VP	ę.	s	VP
							••									
Sandering																
Least sandpiper																
Western sandpiper																
Common snipe														5.00	0	0
Unidentified Scolopacidae																
Glaucous-winged gull																
Western gull																
Herring																
California gull																
Ring-billed gull																
Mew gull								0	0.17	0.03						
Black-legged kittiwake																
Bonaparte's gull																
Caspian tern				0	0.17	7 0.21	21									
Unidentified Laridae	0	0	0.11					0	0	0.07						
Rufous humaingbird				0	0.17	7 0.21	21							0	0.17	5.31
Unidentified Trochilidae																
Common flicker	0	0	0.04								0	0	0.15			
Downy Woodpecker				0	0.17	7 0.59	59				0.83	0	0			
Unidentified Picidae											0	0	0.03			
Barn Svallow								0	0.33	0						
Cliff swallow																
Violet-green swallow																

Table Al0 (Continued)

		IMAP			IMA			SMAP			SNA				MRG	
	-	S	VP	T	S	VP	T	S	d A	-	S		VP	٠.	S	VP
Sanderling						••										
Least Sandpiper	7.08	1.67	1.08	0	0.17	0.11	0.45	0	0							
Western sandpiper	4.50	2.33	6.84	18.50	6.33	3.98	13.67	15.67 16.07	16.07	9	6.33 4.	4.00 4	4.62	5.67	00.9	9.07
Common snipe				0.28	0	0										
Unidentified Scolopacidae	0	15.67	1.05				0	0	2.46	3.	3.33 0		0	0	0	4.19
Glaucous-winged gull				0	0	0.02								0	0	0.05
Western gull	0.17	0	0.05	0	0.33	60.0	0.17	0	60.0	0	0	0.17	0.07	0	0.17	0.09
Herring gull										0	0		0.03	0	0	0.05
California gull										0	0		0.03	0.17	0	0
Ring-billed gull														0	0	0.01
Mew gull	O	0	0.19	0.17	0.17	0.07	0.17	0.33	0.21	0	0	0.17 (	0.07	0	0.50	0.47
Black-legged kittiwake																
Bonaparte's gull														0	0	0.05
Caspian tern	0	0	0.01				0	0	0.01	0	0	_	0.01	0	0	0.03
Unidentified Laridae				0.33	0.83	90.0	0.17	0.33	0.11	0	0	J	90.0	0	0.33	0.07
Rufous hummingbird																
Unidentified Trochilidae																
Common flicker				0	0.17	0.03										
Downy woodpecker																
Unidentified Picidae																
Barn swallow																
Cliff swallow																
Violet-green swallow																

Table A 10 (Continued)

		181			181		SI	SBIPL			SBI			SBE	
	-	s	VP	-	s	V.	1	s	VP		S	VP	L	S	VP
Sanderling						••									
Least sandpiper															
Western sandpiper	2.50	0	0	4.17	5.17	2.97	0.17	7.83	2.71	23.67	23.67 22.00 13.16	13.16	16.17	12.83	8.33
Common snipe															
Unidentified Scolopacidae										0	20.38	8.40	0	0	7.31
Glaucous-winged gull	0	0	0.01	0	0	0.01	0	0.17	0.01				0	0	0.01
Western gull				0.17	0	0	0	0	0.05				0	. 0	0.02
Herring gull				0	0	0.05	0	0	0.02	0	0.17	60.0	0	0	0.02
California gull				0.17	0	0							0.17	0.17	0.07
Ring-billed gull															
Mew gull	0	0.17	0.19	0.83	0.33	0.26	0.33	0.50	60.0	0.17	0.17	0.12	0	0	0.26
Black-legged kittiwake															
Bonaparte's gull															
Caspian tern				0	0	0.02	0	0	0.10				0	0	0.36
Unidentified Laridae	0	0	0.01	0	0	0.17	0.67	0.33	0.09	0.33	0.33	0.04	0.33	0.17	0.19
Rufous hummingbird															
Unidentified Trochilidae															
Common flicker															
Downy woodpecker															
Unidentified Picidae															
Barn swallow															
Cliff swallow															
Violet-green swallow															

Table AlO (Continued)

**************************************		IUPPL			IUPP			IUP			ITSP			ITS	1
	=	S	VP	-	S	ΛÞ	-	S	ΛÞ	-	S	VP	-	S	dΛ
Tree swallow	0	0.17	0.07	0.50	0.17	0.31	0	0	0.02				0	0.17	5.31
Rough-winged swallow															
Unidentified Hirundinidae				0	0	0.08									
Common raven															
Common crow	0	0	0.24	0	0	0.15	0	0	0.01	5.62	5.17	5.22	3.18	4.83	2.32
Black-capped chickadee										2.78	1.50	1.91	1.11	0.67	0.85
Winter wren										0.21	0.17	0.15	0.21	0.33	0.29
Bewick's wren										0	0.17	0.15			
American robin.				٠			0	0.17	0.05	0.33	0.50	0.58	0.17	0.33	0.41
Ruby-crowned kinglet										0	0.50	0.25	O	0	80.0
Water pipit	0.56	0.83	1.96												
Starling				0	0	0.07									
Orange-crowned warbler										0	0.50	0.64	0.37	0.83	1.06
Yellow warbler															
Wilson's warbler															
Red-winged blackbird															
Brown-headed combird				0	0	0.04	0.42	0	0.13	0	0.67	0.85	9	0.67	0.85
American goldfinch							0	0.17	0.05						
Savannah sparrow	2.00	1.00	1.06	0.17	0.67	0.53	0.50	1.00	0.74						
Dark-eyed junco															
White-crowned sparrow				0.83	0	0.04									
Golden-crowned sparrow															
Song sparrow										1.00	1.00	1.18	0.83	1.33	1.47

(Continued)

Table Al0 (Continued)

		GWH			IMA			SMAP			SMA			NALA	
	:-	S	VP	~	S	4V	-	S	VP		S	ΛÞ	-	S	VP
Tree swallow	0	0.17	0.21	0.37	0.67 0.85	. 88.0				0.18	1.50	1.91	0	0.50	0.64
Rough-winged swallow Unidentified Hirundinidae	0	0													
Common raven Common crow	0	•	0.07	0	0	0.13	0	0	0.01	0	0	0.19	0	0	0.12
Black-capped chickadee															
Winter Wren															
Bewick's wren															
American robin															
Ruby-crowned kinglet															
Water pipit													0	1.17	2.32
Starling				0	0	0.11									
Orange-crowned warbler															
Yellow warbler															
Wilson's warbler															
Red-winged blackbird															
Brown-headed combird															
American goldfinch															
Savannah sparrow				1.67	0	c									
Dark-eyed junco															
White-crowned sparrow															
Golden-crowned sparrow	,														
Song sparrow															

Table Al0 (Concluded)

			IBIP			181			SBIPL			SBI			SBE	
		-	s	VP	-	S	٠ م	T	S	VP	7	S	ΛÞ	-	s	VP
	Tree swallow	9	0	0.07			•	0.17	0.33	0.54	0.17	0.17	90.0	0.17	0	0
	Rough-winged swallow							0	0.17	0.21						
	Unidentified Hirundinidae															
	Common raven															
	Соншоп стом	0	0.17	0.03	0	0.17	0.04				0	0	0.03	0	0	0.01
	Black-capped chickadee															
1	Winter wren															
175	Bewick's wren															
	American robin				٠											
	Ruby-crowned kinglet															
	Water Pipit															
	Starling															
	Orange-crowned Warbler															
	Yellow warbler															
	Wilson's Warbler															
	Red-winged blackbird															
	Brown-headed cowbird															
	American goldfinch															
	Savannah sparrow															
	Dark-eyed junco															
	White-crowned sparrow															
	Golden-crowned sparrow															
	Song sparrow															

(Continued)

		IUPPL				IUPP			IUP			ITSP			ITS	
	=	S	Λh	2.1	=	S	VP	=	S	VP	-	S	VP	-	S	4
Соштоп 100п																
Unidentified Gaviidae																
Horned grebe																
Unidentified Podicipedidae																
Double-crested cormorant																
Canada goose																
Mallard	0.17	0	0.02	12	0	0.50	0.21	0	0	0.12	0.48	0.33	0.74	0.24	0	0
Pintail								0	0.50	1.77						
American Wigeon																
Blue-winged teal																
Cinnamon teal					0	0	0.11									
American green-winged teal																
Greater scaup																
Lesser scaup																
Common merganser																
Red-breasted merganser																
Unidentified Anatidae	`															
Bald eagle																
American kestrel																
Great blue heron																
Black-bellied plover																
Semipalmated plover																
Killdeer	0	0.17	0.07		0.17	0	0	0.33	0	0						
Greater yellowlegs					0	0	0.15									

(Continued)

			IMAP			IMA			SMAP				SMA			MALA	
		-	S	VP	-	s ·	VP	-	S	VP		F	S	Ϋ́	-	S	VP
	Common Joon				0	0.33	0.33 0.09								0.18	0	0
	Unidentified Gaviidae																
	Horned grebe																
	Unidentified Podicipedidae				0	0	0.11										
	Double-crested cormorant																
	Canada goose	0	0	0.01								0	0	0.01			
A	Mallard				0	0	0.19					0	o-	0.05	0	0	0.02
77	Pintail																
	American wigeon																
	Blue-winged teal														0		0.09
	Cinnamon teal	0.42	0.17	0.07	0	0.50	0.18								0.21		0.04
	American green-winged teal	0.42	0	0											0.42	1.00	0.40
	Greater scaup											0	0	0.13			
	Lesser scaup							0	0	0.66	9						
	Common merganser											0	0.17	0.05			
	Red-breasted merganser														0	0	0.03
	Unidentified Anatidae														0	0	1.77
	Bald cagle																
	American kestrel																
	Great blue heron																
	Black-bellied plover																
	Semipalmated plover	0	0.17	0.33											0	0	0.04
	Killdeer																
	Greater yellowlegs																

Table All (Continued)

Table All (Continued)

		1819			181			SBIPL			SB1			SBE	
	-	S	VP		S	VP	-	S	VP	-	s	VP	;_	S	VP
Common 100n						••									
Unidentified Gaviidae															
Horned grebe															
Unidentified Podicipedidae															
Double-crested cormorant															
Canada goose															
Nallard	0	0.33	0.03	0	0	0.08				0	0	0.05			
Pintail															
American wigeon															
Blue-winged teal															
Cinnamon teal											4				
American green-winged eal	0	0	0.03				0	0.33	0.01						
Greater scaup						•									
Lesser scaup															
Common merganser				0	0	0.02									
Red-breasted merganser															
Unidentified Anatidae										0	0	0.21			
Bald eagle															
American kestrel															
Great blue heron															
Black-bellied plover															
Semipalmated plover	1.00	1.33	0.35	0	0	0.02				0	0.17	0.02	0.17	0.17	0.05
Killdeer				0	0.17	0.05				0	0	0.05			
Greater yellowlegs															

(Continued)

		IUPPL			IUPP			IUP				ITSP			ITS	
	-	S	VP	-	S	VP	:-	S	VP		T	s	VP	-	S	VP
Dunlin	13.33	0	0				0 :	0.17	0.94	4						
Sanderling																
Least sandpiper																
Western sandpiper							1.00	7.50	5.89	6						
Common snipe																
Unidentified Scolopscidae																
Glaucous-winged gull																
Western gull							0	0.17	0.05	7						
Herring gull																
California gull																
Ring-billed gull																
Mew gull																
Black-legged kittiwake																
Bonaparte's gull																
Caspian tern																
Unidentified Laridae																
Rufous hummingbird																
Unidentified Trochilidae										•	0.42	0	0			
Common flicker																
Downy woodpecker										•	0	0.50	0.64	0.45	0.50	0.64
Unidentified Picidae										J	0.24	0.50	0.12			
Barn swallow	0	0	0.05				0	0.33	3 0.07	7						
Cliff swallow																
Violet-green swallow																

(Continued)

Table All (Continued)

		IMAP			IMA			SMAP			SMA			NMA	
	5-	S	ΛÞ	-	S	γV	-	S	VP	-	S	VP	_	S	VP
Dunlin	3.67	5.17	1.91	1.83	6.33	2.44	2.00	1.83	06.0	0	4.17	1.70	0	9.00	1.59
Sanderling															
Least sandpiper				0	0.17	0.11							0.83	. 0	c
Western sandpiper	7.50	7.50 25,33	12.20	13.67	26.00	13.05	2.33	10.83	6.21	1.00	10.00	7.27	0	10, 50	3.45
Common snipe															
Unidentified Scolopacidae							0	0	0.03	0	0	4.19			
Glaucous-winged gull															
Western gull	0	0.33	0.21	0.33	0.33	0.00	0	0	0.05				0	0	0.07
Herring 8ull										0	0	0.05			
California gull	0.17	0	0	•			0	0	0.03						
Ring-billed gull							0	0.17	0.01				0.17	0	0.08
Mew gull				0.17	0	0.05	0	0.33	0.07	0	0.17	0.00	0.17	0.33	0.02
Black-legged kittiwake															
Bonaparte's gull													0	0.67	0.33
Caspian tern				0	0	0.01							0	0	0.02
Unidentified Laridae	0.33	0	0.05	0	0	0.04	0.17	0.17	0.08	0	0.33	0.11	0.17	0.17	0.11
Rufous hummingbird															
Unidentified Trochilidae															
Common flicker															
Downy woodpecker															
Unidentified Picidae															
Barn Swallow	0.28	1.33	0.64				0.28	9	0.16	0	0.33	0.27	1.11	1.17	0.69
Cliff swallow	0	0.17	0.21										0	0.83	1.06
Violet-green swallow															

		181			181			SBIPL			SBI			SBE	
	-	S	VP		S	ΛÞ	1	S	VP	F	S	dΛ	T	S	VP
Dunlin	0.50	0.33	0.14	1.50	1.33	6.71	0	0	0.05	10.17	3.83	2.66	0	1.67	1.39
Sanderling															
Least sandpiper	0	0.17	0.33												
Western Sandpiper	8.00	15.17	8.28	23.67	12.00	12.41	0.83	4.83	2.18	8.00	3.67	5.57	4.83	5.00	7.32
Common snipe															
Unidentified Scolopacidae				0	0	0.61	0	0	1.99	0	0	1.32	0	0	1.52
Glaucous-winged gull							0	0	0.03						
Western gull	0.17	0	0.05	0.33	0.17	0.07				0	0	0.07			
Herring gull	0	0	0.05	0	0.17	0.05	0	0	0.03	0	0	0.02	0	0	0.02
California gull							0	0.17	0.05	0	0	0.02			
Ring-billed guil	0	0	0.08							0	0	0.11			
Mew gull	0.17	0	0	0	1.17	0.38	0	0.17	0.12	0	0.17	0.08	0.17	0.17	0.05
Black-legged kittiwake															
Bonaparte's gull				0.50	0	0.04	0	0.17	0.03	0.17	0	0.02	0	0.67	0.07
Caspian tern															
Unidentified Laridae	0	0	0.02	0.17	0	0.08	0	0.50	90.0	0.33	0	0.04	0.17	0.33	90.0
Rufous hummingbird															
Unidentified Trochilidae															
Common flicker															
Downy Woodpecker															
Unidentified Picidae															
Barn swallow				0	0	0.04	0	0.17	0.08	.0	. 0	0.08	0	0	0.04
Cliff swallow										1.67	0	0.09	0	0.17	0.04
Violet-green swallow							0	0	0.08						

(Continued)

Table All (Continued)

		TUPPL			IUPP			IUP			ITSP			ITS	
	-	s	ΛÞ	-	S	d/		S	d A	T	S	Λb	٦	s	VP
Tree swallow	0.17	0.50	0.12	0.50	0.33	0.14	0	0	0.02						
Rough-winged swallow															
Unidentified Hirundinidae															
Common Faven															
Common crow	0	0	0.07	0	0.33	0.19	0	0	0.02	3.37	3.83	3.07	3.75	2.33	1.66
Black-capped chickadee										0	1.50	1.91	0	0.33	0.42
Winter wren															
Bewick's wren										0	0.33	0.29			
American robin	0	0	0.11	0.33	0.17	0.16				0	0.17	0.17	0.17	0	0.08
Ruby-crowned kinglet				٠											
Water pipit				0	0.17	0.05									
Starling				0	0	0.21									
Orange-crowned warbler										0.92	1.50	1.91			
Yellow warbier													0.55	1.00	1.27
Wilson's warbler													1.67	0.33	0.42
Red-winged blackbird															
Brown-headed cowbird	0	0	0.09	0.21	0.83	0.48	0	0	0.13	0.71	1.17	1.49	0.24	1.50	1.91
American goldfinch	0	0	0.64	0	1.00	0.37	0.17	:0	0.05						,
Savannah sparrow	2.50	3.83	2.60	0.33	1.17	08.0	0.67	0.83	0.85						
Dark-eyed junco															
White-crowned sparrow	0.83	0.50	0.15	2.50	0	0							1.67	0	0.05
Golden-crowned sparrow										0.17	0	0			
Song sparrow										0.67	1.33	1.47	0.33	1.67	1.92

Table All (Continued)

		IMAP			IMA			SNAP			SNA			MMA	1
	-	S	VP	-	S	ΔÞ	Ţ	S	d A	-	S	d\	-	S	ΛÞ
Tree swallow	0.18	0	0										0.18	0.67	1.06
Rough-winged swallow															
Unidentified HirundiniJae															
Common raven															
Common crow	0	0.17	0.12	0	0	0.08	0	0	0.03	0	0	0.08	0	0	0.20
Black-capped chickadee															
Winter wren															
Bewick's wren															
American robin				٠											
Ruby-crowned kinglet															
Water pipit															
Starling															
Orange-crowned warble.															
Yellow warbler															
Wilson's Warbler															
Red-winged blackbird	0	0	0.02	. 0	0	0.02									
Brown-headed cowbird	,			0	0.17	0.33									
American goldfinch	•														
Savannah sparrow							0	0.17	1,33						
Dark-eyed junco															
White-crowned sparrov															
Golden-crowned sparrow															
Song sparrow															

Table All (Concluded)

		gran			181			CBIDI			100			Cor	-
		1101			101			SBIFL			190			SBE	
	-	S	VP	-	S	VP	-	S	VP	←	S	ΛÞ	1	S	VP
Tree swallow	0	0.17	0.09	0	0	0.02				0	0	0.02	o	0	0.03
Rough-winged swallow															
Unidentified Hirundinidae				0	0	0.02									
Common raven															
Common crow	0	0	0.03	0	0	0.02	0	0	0.03	0	0	0.00	0	0	0.01
Black-capped chickadee															
Winter Wren															
Bewick's wren															
American robin															
Ruby-crowned kinglet				•											
Water pipit															
Starling															
Orange-crowned warbler															
Yellow warbler															
Wilson's warbler															
Red-winged blackbird															
Brown-headed cowbird															
American goldfinch															
Savannah sparrow										0.42	0	0			
Dark-eyed junco															
White-crowned sparrow															
Golden-crowned sparrow															
Song sparrow															

(Continued)

Estimates of Bird Density by Transect, Station, and Variable Plot Methods by Study Area, Miller Sands, Oregon, June 1977

		IUPPL			IUPP				101			ITSP			ITS	
	-	S	VP	:-	S	ΛÞ	1	T	S	ΔN	-	s	ď	1	s	VP
Mailard	0	c	0.04													
Pintail																
Northern shoveler																
Cinnamon teal																
Common merganser																
Bald eagle				0.33	0	0										
Killdeer	0.19	0	0	0.37	0.50	0.99										
Dunlin																
Unidentified Scolopacidae																
Glaucous-winged gull				•												
Western gull																
Herring gall																
California gull																
Ring-billed gull																
Bonaparte's gull							*									
Caspian tern																
Unidentified Laridae	0	0	0.01	0	0	0.01										
Вомпу моодрескег											0	0.33	0.66	0.67	0.33	0.66
Unidentified Picidae											0	0	0.05			
Willow flycatcher	0	0	0.20								0.94	1.50	2.32	1.64	1.33	2.65
Barn swallow				0	0.33	0.29										
Cliff svallow	0.19	0	0.05				0		0	0.05						
Violet-green swallow																

Table A12 (Continued)

						-	-	-							
		IMAP			IMA		,	SMAP			SMA			MINIA	
	-	S	dΛ	-	S	ΛÞ	-	S	ΛÞ	<u>i-</u>	S	VP	<b>E</b>	S	ΛÞ
Mallard	0.17	0.33	0.07	0	0	0.02							0.17	0	0.07
Pintail							0	0	0.08						
Northern shoveler													3.33	0.33	0.13
Cinnamon teal	1.04	1.17	99.0	0.42	0	0	0	0	0.33	0	0	0.17			
Common merganser															
Bald eagle															
Ki 11deer													0.17	0.50	0.74
Dunlin															
Unidentified Scolopacidae															
Glaucous-winged gull				0:17	0	0	0	0	0.03	0	0	0.05			
Western gull	0	0	0.03	0	0.17	60.0	0	0	0.03	0	0	0.07			
Herring gull	0	0	0.01	0	0	0.01				0.17	0	0			
California gull				0		0.03	0.17	0	0.02	0	0	0.03	0.17	0	0.12
Ring-billed gull	0.50	0.17	0.21	0.83	0.50	0.24	0.67	0.50	0.33	0.33	0.17	0.68	0.33	0	0.28
Bonaparte's gull				0	0	0.01	0	0.17	0.01	0.83	1.17	0.28	0	0	0.53
Caspian tern										0	0	0.08	0.17	0	0
Unidentified Laridae	1.33	0.50	0.14	0.33	0.17	0.31	0	0.17	0.59	0.17	2.33	7.33	0.17	0	0.28
Downy Woodpecker															
Unidentified Picidae															
Willow flycatcher															
Barn swallow	0.50	2.00	2.55				1.67	3.50	3.61	1.17	2.67	2.97	0	0.17	0.21
Cliff swallow	0	0.17	0.21				0.50	0.67	1.06	0.33	2.33	1.49			
Violet-green swallow															

(Continued)

		1819			181		S	SBIPL			SBI			SBE	1
	-	S	ΛÞ	£	S	Δħ	-	S	VP.	T	S	VP	-	S	A A
Mallard						••									
Pintail															
Northern shoveler															
Cinnamon teal															
Common Merganser				0	0	99.0									
Bald eagle													0	0	0.01
Killdeer							0	0	0.07				0.19	0.17	0.33
Dunlin										0	0	0.05			
Unidentified Scolopacidae															
Glaucous-winged gull				0.17	0	0.05	0	0	0.03						
Western gull	0	0	0.07	0	0	0.12							0	0.17	0.07
Herring gull							0	0	0.03	0	0	90.0			
California gull	0.33	0	0.13	0	0	1.77				0	0.17	0.13	0	0.17	0.07
Ring-billed gull	0	0	0.17	0.50	0.33	0.54	0	0	0.21	0.50	1.00	0.31	0.17	0.17	0.12
Bonaparte's gull				0	0.50	0.07				2.50	1.67	1.84	0	0	0.05
Caspian tern				0.17	0	0.24	0	0	0.03	0	0.17	0.07	0	0.33	0.02
Unidentified Laridae	0.17	0.17	0.33	0.17	0	1.34	0.17	0.17	60.0	0.67	0.33	1.27	1.17	0.50	0.45
Downy woodpecker															
Unidentified Picidae															
Willow flycatcher															
Barn swallow							2.00	3.50	2.60	0.33	0.83	0.76	0	0.33	0.32
Cliff swallow							0.83	1.33	0.99	0	0	0.08	0.50	0.83	0.83
Violet-green swallow							0	0	0.15						

A87

Table A12 (Continued)

Table A12 (Continued)

		IUPPL			IUPP			IUP			ITSP			ITS	
	-	S	VP	-	S	ΛÞ	-	S	VP	-	S	VP	1	co	VP
Tree swallow	0.18	0.33	0.29	0	0.67	. 88 0	0	0.17	0.15						
Bank swallow															
Unidentified Hirundinidae															
Common crow	0	0	0.03	0.33	1.67	0.42	0.17	0	0.04	2.33	3.33	2.33	2.17	2.17	1.70
Black-capped hickades				0	0	90.0				2.05	0.33	0.42	0.77	1.33	1.70
Bewick's wren										0.30	0.67	1.33	0	0.33	99.0
Long-billed marsh wren															
American robin															
Swainson's thrush				0	0.17	0.21				0.33	0.50	0.50	0.50	1.00	0.75
Starling				0	0	0.13	0.50	0	0						
Yellow warbler										0	0.33	0.42	1.67	0	0
Brown-headed cowbird				0.95	0.17	60.0				0.24	0	0.15			
American goldfinch	0.67	0	0	2.00	1.00	0.75	0	0.33	0.33	0.45	0	0			
Savannah sparrow	4.33	3.50	2.36	0.17	1.17	0.59	2.67	3.00	1.96						
White-crowned sparrow	0	0	0.21	0	0.17	0.02				0	0.17	0.08	0	0.17	0.16
Song sparrow										0	1.67	2.55	1.70	0.33	0.45

Table Al2 (Continued)

		IMAP			IMA			SMAP			SMA			MATA	1
	-	s	VP		S	ΛÞ	-	S	VP	←	s	VP	۲	S	ΥP
Tree swallow	0.22	0	0	0	0.17	0.21	0.22	1.00	1.27	0.22	0 33 0 47	0.42	0	71.0	5
Bank swallow												<del>1</del>			0.21
Unidentified Hirundinidae	0	0	0.17	0	0.17	0.08									
Common crow	0	0	0.14	0.19		0.05	0	0	0.05	0	0	0 24	01.0	•	,,,
Black-capped chickadee				0	0.33	0.29				,	,	7	0.19	•	0.17
Bewick's wren															
Long-billed mirsh wren				0.56	0.17	0.15									
American robin				0	0.17	0.22									
Swainson's thrush													c	•	90.0
Starling													•	•	0.02
Yellow warbler															
Brown-headed cowbird															
American goldfinch	0.21	0.17	0.02	0	0.50	0.16									
Savannah sparrow															
White-crowned sparrow															
Song sparrow															

Table A12 (Concluded)

		IBIP			181			SBIPL	]			SBI			SBE	1
	-	S	ď		S	VP	-	S	VP	0.1	٠	S	VP	1	S	ΥP
Tree swallow								0.	0.17 0.22	.2						
Bank swallow							0.45			\$3						
Unidentified Hirundinidae														0	c	91 0
Common crow	0	0.17	0.03	0	0.17	0.05	0	0	0.07		0	o	0 0			00.0
Black-capped chickadee														•		0.03
Bewick's wren																
Long-billed marsh wren																
American robin																
Swainson's thrush																
Starling							0	0	1.62	2						
Yellow warbler																
Brown-headed combird																
American goldfinch	0	0.17	0.33				0	0.50	90 0.99	6						
Savannah sparrow																
White-crowned sparrow																
Song sparrow																

(Continued)

Table Al3 Estimates of Bird Density by Transect, Station, and Variable Plot Methods by Study Area, Miller Sands, Oregon, July 1977

			Tadni			IUPP			IUP			ITSP			ITS	
		-	S	VP	<b>=</b>	S	VP	=	S	VP	-	S	VP	-	S	VP
	Double-crested cormorant															
	Mallard															
	Cinnamon teal															
	Bald eagle															
	Great blue heron															
	Killdeer															
	Greater yellowlegs															
A9:	Least sandpiper															
	Western sandpiper															
	Common snipe				. 0	0	0.05									
	Unidentified Scolopacidae															
	Glaucous-winged gull															
	Western gull															
	Herring gull															
	California gull															
	Ring-billed gull															
	Bonaparte's gull															
	Caspian tern															
	Unidentified Laridae	0	0	2.90				0	0	0.01						
	Rufous hummingbird															
	Downy woodpecker										0	0.1.	0.17 0.33	0.33	0	0

Table A 13 (Continued)

		TMAP			IMA			SMAP			SMA			MMA	
	-	S	VP	<u>.</u>	S	VP	-	S	VP	-	S	Λb	<b>-</b>	s	VP
Double-crested cormorant	0	0	0.01	0	0	0.11 :									
Mallard				0	0	0.02				0	0	0.03			
Cinnamon teal													0	0.33	0.17
Bald eagle				0	0	0.03									
Great blue heron													0	0	0.05
Killdeer							0	0.17	0.29	0.83	0.50	0.44			
Greater yellowlegs													0	0	0.03
Least sandpiper															
Western sandpiper							0	5.50	3.40	10.10	4.17	10.36			
Common snipe															
Unidentified Scolopacidae										0	0	0.03	0	0	1 19
Glaucous-winged gull				0	0	0.05				0.17	0	0	0.17	0	0
Western gull				0	0	0.07							0.33	0	0.09
Herring gull															
California gull	0	0.50	0.09	0	0	0.05	0.17	0.17	0.24	0	0.17	0.09	0.17	0	0.05
Ring-billed gull				0	0	0.00	0	0	0.02	0	0	0.07			
Bonaparte's gull				0	0	0.02	0	0.33	0.08	0	0	0.01	0	0	0.01
Caspian tern	0.33	0	0												
Unidentified Laridae	0.50	0.17	0.17	0.33	0	0.12	0.33	0.17	0.24	0.33	0.67	0.26	0	0.33	0.38
Rufous hummingbird							0	0.17	1.33						
Downy woodpecker															

A92

(Continued)

0.20 0.02 0.14 0.01 8.70 0.17 0.03 0.24 ٧P 0.33 0.17 SEE 0 -0 0 0 0 0 0 0.45 0.02 0.02 0.03 0.05 0.14 19.52 Ϋ́ 0.33 1.56 15.33 0.17 0.33 0.17 S SBI 0.17 0.33 ۱ 0.07 0.02 22.99 0.07 0.08 VP 0 7.33 10.00 0.17 2.17 SBIPL S 00.9 10.71 0.17 0 -0.03 0.02 0.33 0.05 0.38 0.01 0.01 7 0.17 0.17 IBI 0 0 0.17 0.17 0.33 -0 0.03 0.05 0.65 0.02 0.05 ٧٧ 0.17 0.17 0.17 IBIP S 0.56 0.17 -0 Unidentified Scolopacidae Double-crested cormorant Unidentified Laridae Glaucous-winged gull Rufous hummingbird Greater yellowlegs Western sandpiper Bonaparte's gull Downy woodpecker Ring-billed gull Great blue heron California gull Least sandpiper Caspian tern Cinnamon teal Herring gull Common snipe Western gull Bald cagle Killdeer Mallard

Table A13 (Continued)

Table Al3 (Continued)

		IUPPL			IUPP			IUP			ITSP			ITS	
	1	S	ΛÞ	T	S	VP	<u>.</u>	S	VP	<u>-</u>	S	ΛÞ	⊢	S	ΛÞ
Unidentified Picidae										0	0	0.05			
Willow flycatcher										0.70	2.17	2.98	2.35	0.67	1.33
Unidentified Tyrannidae										1.67	0	0	0	0.17	21.22
Barn swallow	1.13	0	1.62	0.23	0.50	0.44	0	0.83	0.74						
Cliff swallow	0.93	0	0.27	0	0.33	0.16									
Tree swallow	2.11	0	1.33	0.53	0.33	0.29									
Bark swallow															
Unidentified Hirundinidae	6.83	0	0				0	1.17	66.0						
Common crow	0	0.50	0.29	0.50	0.17	0.41	0	0	0.03	3.17	3.17	2.18	2.83	2.50	1.75
Black-capped chickadee										3.08	1.50	1.19	0.26	1.33	1.70
Bewick's wren										1.19	0.17	0	0	0.50	0.99
American robin	0	0	0.08	0	0	0.11									
Swainson's thrush										0.67	0.33	0.91	0.67	1.17	0.83
Cedar waxwing															
Starling				0	0.50	0.20									
Brewer's blackbird													0	0	0.44
Brown-headed combird	0	0.33	0.17	0	0.33	0.17	0	0	0.05				0.24	0.50	0
Unidentified Icteridae															
American goldfinch	0	0	0.17	1.67	1.33	99.0	0	0.67	1.08						
Savannah sparrow	5.33	5.00	3.86	1.33	3.17	1.83	1.50	3.17	1.83						
White-crowned sparrow	0	0.17	0.11	0	0	0.08	0.56	0.17	0.05						
Song sparrow	0	0	0.21							0.57	2.33	2.97	0	1.83	2.33
													0.95	0	0

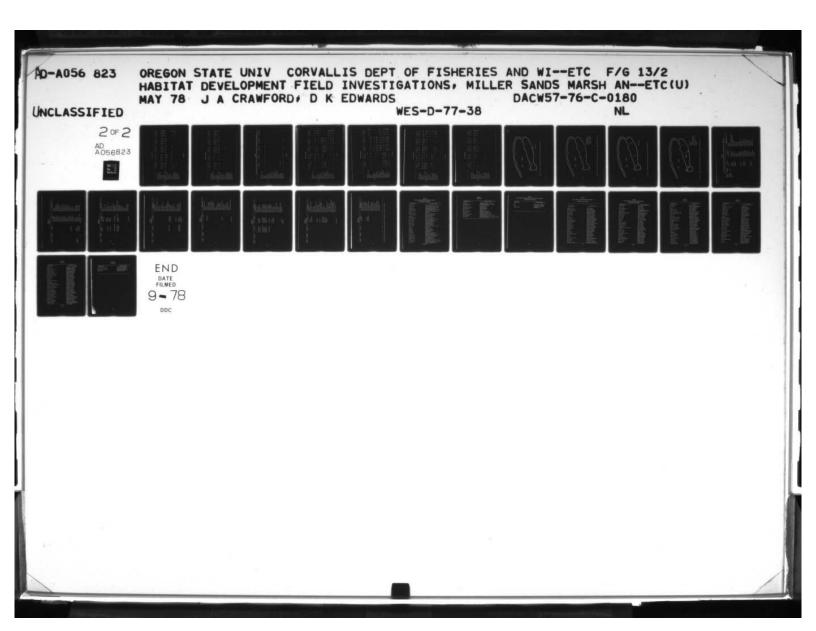


Table Al3 (Continued)

		IMAP			IMA			SMAP			SNA			MAIA	
	<u>.</u>	S	Λb	1	S	ΛÞ	-	x	VP	T	S	VP	-	s	VP
Unidentified Picidae						•									
Willow flycatcher															
Unidentified Tyrannidae															
Barn swallow	4.17	6.67	8.28	0.17	0.50	0.64	3.83	8.00	9.97	5.33	2.50	2.76	2.17	0.83	1.27
Cliff swallow	0.83	2.17	2.55	1.17	0.17	0.21	1.17	2.17	2.76	0.33	1.00	1.27	0.33	0.83	1.06
Tree swallow	1.75	2.33	2.55				5.92	3.67	4.24	3.07	2.50	3.18	2.85	3.83	4.67
Bark swallow													0.67	1.17	1.49
Unidentified Hirundinidae	0.17	2.67	1.74	0	0	0.05	1.33	2.50	08.0	3.33	4.83	0.83	2.17	3.11	3.89
Соптоп стом	0	0.33	0.28	0	0.17	0.33	0	0.17	0.31	0	0	0.26			
Black-capped chickadee				. 0	0.33	0.29									
Bewick's wren															
American robin															
Swainson's thrush															
Cedar waxwing				0.28	0	0									
Starling	0	0.17	0.05	0	2.83	6.10	0.48	0	0.05				0	0	0.08
Brewer's hlackbird													0	0	0.09
Brown-headed combird	0.33	0	0												
Unidentified Icteridae													0	0.33	0.66
American goldfinch	0	0.17	0.05												
Savannah sparrow															
White-crowned sparrow															
Song sparrow															

Table Al3 (Concluded)

		IBIP			181			SBIPL			SBI			SBE	
	-	S	ΛÞ	-	S	d A	-	S	ΛÞ	1	S	ΔĀ	<u>-</u>	S	VP
Unidentified Picidae															
Willow flycatcher															
Unidentified Tyrannidae															
Barn swallow	0	0.33	0.22	0	0.33	0.22	1.50	1.67	1.62	3.83	2.50	2.38	0.33	2.17	2.17
Cliff swallow	0	0.33	0.17				0.67	1.67	1.08	2.17	2.50	1.66	1.33	0.83	1.24
Tree swallow	0	1.83	1.30				8.33	9.67	9.53	5.21	2.83	2.38	0.83	0.83	0.76
Bark swallow															
Unidentified Hirundinidae							2.50	3.50	1.43	0	1.83	3.13	0	0	0.32
Common Crow	0	0.17	0.05	0.17	0	0	0	0.17	0.12	0	0	0.16	0	0	0.00
Black-capped chickadee				•											
Bewick's wren															
American robin															
Swainson's thrush									,						
Cedar waxwing															
Starling							0	0.17	0.05						
Brewer's blackbird															
Brown-headed cowbird															
Unidentified Icteridae	,														
American goldfinch															
Savannah sparrow															
White-crowned sparrow															
Song sparrow															

(Continued)

Estimates of Bird Density by Transect, Station, and Variable Plot Methods by Study Area, Miller Sands, Oregon, August 1977

		IUPPL			IUPP			IUP			ITSP			ITS	
	T	s	VP	1	s	Α'n	1	s	VP	H	S	VP	<b>-</b>	S	VP
									1			1			1
Common loon															
Double-crested Cormorant						•									
Canada goose															
Snow goose															
Mallard	0	0	0.38	0	0	0.03	0	0	60.0						
Pintail															
Cinnamon teal															
Common merganser															
Bald eagle															
Great blue heron															
Semipalmated plover															
Killdeer															
Long-billed dowitcher															
Least sandpiper															
Western sandpiper															
Unidentified Scolopacidae															
Glaucous-winged gull															
Western gull	,														
Herring gull															
California gull	0	0.17	0.29												
Ring-billed gull															
Bonaparte's gull															
Caspian tern	0	0	0.01	0	0.17	0.05	0	0.33	0.01	0	0.33	0			

Table Al4 (Continued)

					r.n.r			SMAP			SMA			MM	
	1	S	VP	=1	S	ΛÞ	<u>-</u>	s	d√ 	-	S	VP	۱	s	VP
Common loon	0	0	0.08	0	9	0.08									
bouble-crested cormorant															
Canada goose															
Show Boose															
Mallard	0	0	0.03	0.17	0.17	0.03	0	0.67	60.0	0	0.33	0.50	3.00	1.00	0.50
Pintail															
Cinnamon teal							0.83	0	0				0	1.33	99.0
Common merganser				0	0	0.59							0	0.50	0.44
Bald eagle															
Great blue heron													0	0	0.03
Semipalmated plover										0.93	0.50	0.91			
Killdeer	0.17	0.17	0.15	0	0.67	0.59	0.17	0.17	0.15	0	0.33	0.29			
Long-billed dowitcher							0	0	0.03	•	0.50	0.44			
Least sandpiper	0.83	1.67	3.32				4.44	1.00	1.99						
Western sandpiper	0	0.17	0.08				4.04	1.50	0.75	4.55	1.50	1.99			
Unidentified Scolopacidae															
Glaucous-winged gull							0	0	0.02						
Western gull	0	a	0.05							0.17	0	0.05	0.33	0.17	0.02
Herring gull													0	0.17	0.03
California gull				0	0	0.05	0	0.17	0.05	0	0.17	0.05	0	0.17	0.05
Ring-billed gull										0	0	0.05	0	0	0.02
Bonaparte's gull							0	0	0.01	0:21	0	0	0	0	0.04
Caspian term	0	0.33	0.58	0	0.33	2.07				0.67	0.33	0.25	0.17	0.67	0.83

(Continued)

(Continued)

0.17 0.01 0.49 0.26 0.05 0.12 1.77 1.91 0.07 3 1.50 0.50 0.17 0.17 1.17 SBE S 0 0.89 0.67 0.17 0.45 0 0.59 0.03 0.20 0.39 42.23 0.05 0.02 0.31 0.61 0.01 ٧V 40.33 0.17 0.17 0.67 0.33 0.17 0.33 0.50 2.67 S 0 SBI 30.00 0.50 0.17 0.83 0.37 0.17 0 0 17.19 3.54 3.98 0.12 0.20 0.05 0.08 0.42 0.08 0.13 0.11 ٧P 1.00 0.33 0.67 0.50 0.33 2.00 0.33 0.50 SBIPL S 0 6.22 0.17 0.17 0.17 00.1 0.33 0.19 2,38 0.42 0 o 0.19 0.03 0.45 0.05 0.05 0.06 0.07 0.01 VP 0.17 0.33 0.33 0.17 0.17 0.17 S IBI 0.17 1.00 . 0 0 0 0.05 90.0 0.05 0.26 0.05 0.31 0.02 ٧P 0.33 1.00 0.17 0.33 0.17 IBIP S 1.00 0.17 0 0 0 0 Unidentified Scolopacidae Double-crested cormorant Long-billed dowitcher Glaucous-winged gull Semipalmated plover Western Sandpiper Great blue heron Bonaparte's gull Common merganser Ring-billed gull Least sandpiper California gull Cinnamon teal Western gull Caspian tern Herring gull Canada goose Common loon Bald eagle Snow goose Killdeer Mallard Pintail

Table Al4 (Continued)

(Continued)

4.24 0.45 0.40 0.11 1.33 0.11 1.66 0.17 0.17 0.67 1.17 0.17 4.33 0.33 MMA 0.50 0.17 0 0 0.03 12.00 32.00 37.35 0.64 0.05 0.21 VP 0.33 0.17 0.50 0.17 SMA S 0.17 0 0 0 0.02 24.83 2.12 1.06 0.28 0.19 0.33 0.08 V. 1.67 20.50 0.83 0.33 0.17 0.17 0.17 SMAP S 5.00 0.24 0 0 0 4.24 0.05 0.21 0.14 0.44 385.71 47.75 4 3.83 0.17 1.00 0.50 IMA S 0.83 -0 0.12 8.91 0.42 0.45 0,68 0.11 ٧P 0 0.83 2.00 0.33 0.33 7.33 3.00 IMAP 0 6.33 1.17 0.17 0.44 2.00 0.93 -0 Unidentified Hirundinidae Black-capped chickadee White-crowned sparrow Unidentified Laridae Unidentified Picidae Red-winged blackbird Brown-headed cowbird American goldfinch Willow flycatcher Swainson's thrush Savannah sparrow American robin Bewick's wren Cliff swallow Barn swallow Tree Swallow Song sparrow Common crow Starling

A101

Table Al4 (Continued)

Table A14 (Concluded)

		1819			181			SBIPL			SBI				SBE	1
	١	S	4V	-	S	VP	⊢ .	S	VP	-	S		d/	۲	S	VP
Unidentified Laridae	1.17	0.17	0.02	0	9	0.02	2.67	7 0.67	7 0.26		0.33 0.33		0.33	0.17	0.67	99.0
Unidentified Picidae																
Willow flycatcher																
Barn swallow	0	0.17	0.11	0	0.33	0.54	6.17		17.33 12.13	1.00	0 10.	10.50	6.82	2.67	8.00	4.98
Cliff swallow							0	0.17	7 0.08	0	0.	0.83 0	0.17	0	0	0.08
Tree swallow				0	0.33	0.22	0.21		11.0 7	0	0.		0	0.21	0.33	0.22
Unidentified Hirundinidae														0	0	0.11
Common crow	0.33	0	0				0.50	0 0.17	7 0.24	0.17	0 4	0	0.07	0	0	0.05
Black-capped c ickadee				•												
Bewick's wren																
American robin																
Swainson's thrush																
Starling																
Red-winged blackbird																
Brown-headed cowbird	0	0	0.15	0	0.50	0.44										
American goldfinch																
Savannah sparrow																
White-crowned sparrow																
Song sparrow																

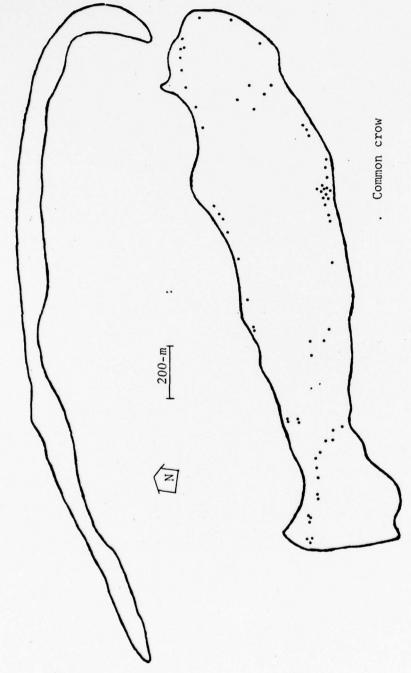


Figure B1. Location of common crow nests found on Miller Sands, Oregon, 1976.

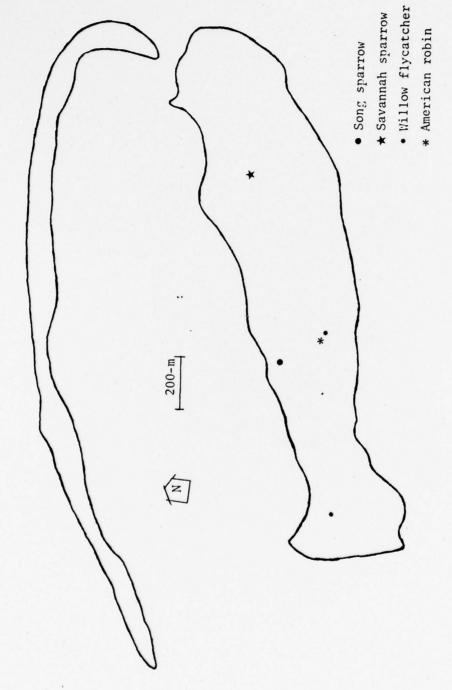


Figure B2. Location of nests, other than common crow, found on Miller Sands, Oregon, 1976.

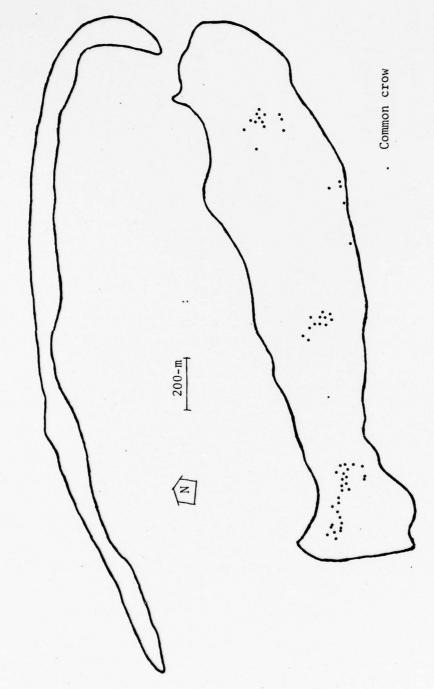


Figure B3. Location of common crow nests found on Miller Sands, Oregon, 1977.

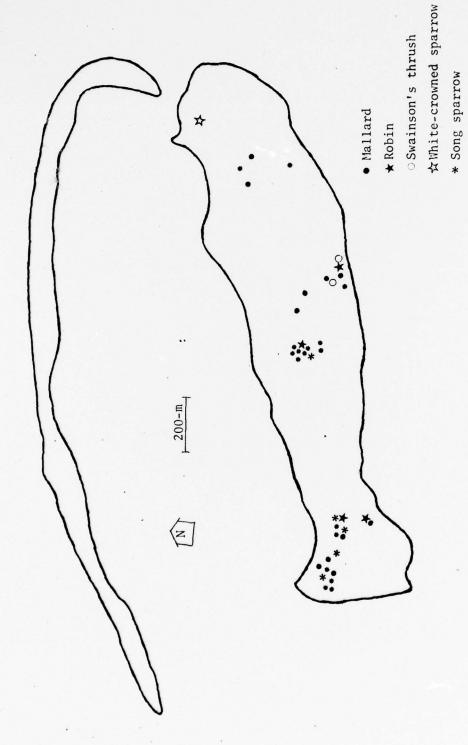


Figure B4. Location of nests, other than common crow, found on Miller Sands, Oregon, 1977.

· · Unknown

Table C1

List of All Animals Observed on Miller Sands, Oregon, July 1976 - August 1977

Crustacea Arachnida Insecta

Class

Соттоп Лате	Sow bugs	Spiders	Narrow-winged damsel flies	Short-horned grasshoppers	Common earwigs	Leaf bugs	Damsel bug	Shore bug	Stink bug	Meadow spittlebug	Leafhoppers	Green lacewings	Rove beetles	Ladybird bettles	Click beetles	Snout beetles	Pyralid moths	Crane flies	Winter crane flies	
Family	Armadillodidae		Coenagrionidae	Acrididae	Forficulidae	Miridae	Nabidae	Saldidae	Pentatomidae	Cercopidae	Cicadellidae	Chrysopidae	Staphylinidae	Coccinellidae	Elateridae	Curculionidae	Pyralidae	Tipulidae	Trichoceridae	(Continued)
Order	Isopoda		Odonata	Orthoptera	Dermaptera	Hemiptera				Homoptera		Neuroptera	Coleoptera				Lepidoptera	Diptera		
Subclass	•	Aranae	,																	

Table C1 (Continued)

Common Name	Midges	Wood gnats	Stilletto flies	Long-legged flies	Syrphid flies	Marsh flies	Lauxanid flies	Heleomyzid flies	Shore flies	Anthomyiid flies	Muscid flies	Tachinid flies	Blow flies	Braconids	Ichneumous	Ants	Bumble bees	Garter snakes	Vagrant shrew	Big brown bat	
Family	Chironomidae	Anisopodidae	Therevidae	Dolichopodidae	Syrphidae	Sciomyzidae	Lauxaniidae	Heleomyzidae	Ephydridae	Anthomyiidae	Muscidae	Tachinidae	Calliphoridae	Braconidae	Ichneumonidae	Formicidae	Apidae	Colubridae	Soricidae	Vespertilionidae	(Continued)
Order										2				Hymenoptera				Squamata	Insectivora	Chiroptera	
Subclass																		1	•		
Class																		Reptilia	Mammalia		

Table C1 (Continued)

Class

Subclass	Order	Family	Common Name
	Rodentia	Capromyidae	Nutria
		Cricetidae	Muskrat
			Townsend's vole
		Muridae	Norway rat
	Pinnipedia	Otariídae	California sea lion
		Phocidae	Harbor seal
•	Gaviiformes	Gaviidae	Common loon
			Arctic loon
			Red-throated loon
	Podicipediformes	Podicipedidae	Western grebe
	•		Horned grebe
	Pelecaniformes	Phalacrocoriacidae	Double-crested cormorant
	Anseriformes	Anatidae	Whistling swan
			Canada goose
			Black brant <sup>a</sup>
			Snow goose
			Mallard
			Pintail
			American wigeon

Northern shoveler

(Continued)

Aves

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Class

	Common Name	Blue-winged teal	Cinnamon teal	American green-winged teal	Canvasback	Greater scaup	Lesser scaup	White-winged scoter	Bufflehead	Ruddy duck	Common merganser	Red-breasted merganser	Turkey vulture <sup>a</sup>	Cooper's hawk <sup>a</sup>	Marsh hawk	Red-tailed hawk	Bald eagle	Merlin	American kestrel	Great blue heron	Black-bellied plover	
(	Family												Cathartidae	Accipitridae				Falconidae		Ardeidae	Charadriidae	(Continued)
	Order												Falconiformes							Ciconiiformes	Charadriiformes	
	Subclass																					

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	Common Name	Semipalmated plover	Killdeer	Whimbrel	Spotted sandpiper <sup>a</sup>	Greater yellowlegs	Lesser yellowlegs <sup>a</sup>	Long-billed dowitcher	Ruddy turnstone <sup>a</sup>	Dunlin	Sanderling	Least sandpiper	Western sandpiper	Common snipe	Glaucous-winged gull	Western gull	Herring gull	California gull	Ring-billed gull	Mew gull	Black-legged kittiwake
(Continued)	Family			Scolopacidae											Laridae						(Continued)
	Order																				
	Subclass																				
	Class																				

Table C1 (Continued)

Subclass

Class

	Common Name	Bonaparte's gull	Caspian tern	Mourning dove <sup>a</sup>	Great horned owl <sup>a</sup>	Barn owl <sup>a</sup>	Common nighthawk <sup>a</sup>	Rufous hummingbird	Belted kingfisher	Common flicker	Downy woodpecker	Western kingbird <sup>a</sup>	Willow flycatcher	Horned lark <sup>a</sup>	Barn swallow	Cliff swallow	Violet-green swallow	Tree swallow	Bank swallow	Rough-winged swallow	Common raven	
(2000)	Family			Columbidae	Strigidae		Caprimulgidae	Trochilidae	Alcedinidae	Picidae		Tyrannidae		Alaudidae	Hirundinidae						Corvidae	
	Order			Columbiformes	Strigiformes		Caprimulgiformes	Apodiformes	Coraciiformes	Piciformes		Passeriformes.										

Corvidae (Continued)

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Subclass

Class

	Common Name	Common crow	Black-capped chickadee	House wren	Winter wren	Bewick's wren	Long-billed marsh wren	American robin	Swainson's thrush	Golden-crowned kinglet	Ruby-crowned kinglet	Water pipit	Cedar waxwing	Starling	Orange-crowned warbler	Yellow warbler	Yellow-rumped warbler	Black-throated gray warbler <sup>a</sup>	Common yellowthroat	MacGillivray's warbler <sup>a</sup>
(Continued)	Family		Paridae	Troglodytidae	••			Turdidae		Sylviidae		Motacillidae	Bombycillidae	Sturnidae	Parulidae					
	Order											•								

(Continued)

Wilson's warbler

Table Cl

Class

	Common Name	Western meadowlark	Red-winged blackbird	Brewer's blackbird	Brown-headed cowbird	Western tanager <sup>a</sup>	Black-headed grosbeak	House finch	American goldfinch	Rufous-sided towhee	Savannah sparrow	Dark-eyed junco	White-crowned sparrow	Golden-crowned sparrow
(Concluded)	Family	Icteridae				Thraupidae	Fringillidae							
	Order													
	Subclass													

 ${\bf a}$  Birds which were observed on Miller Sands but not recorded on transects or stations.

Song sparrow

## <u>Table D1</u> <u>List of Common and Scientific Names of Plants</u> Mentioned in this Report

Common Name	Scientific Name
Sitka spruce	Picea sitchensis (Bong.) Carr
Shore pine	Pinus contorta contorta Dougl.
Douglas fir	Pseudotsuga menziesii Carr
Western hemlock	Tsuga heterophylla (Raf.) Sarg.
Australian pine	Casuarina equisetifolia Forst.
Hickory	Carya spp.
Black cottonwood	Populus trichocarpa T. & G.
Pacific willow	Salix lasiandra Benth.
Red alder	Alnus rubra Bong.
Oregon white oak	Quercus garryana Dougl.
Scot's broom	Ctysisus scoparius (L.) Link
Black locust	Robinia pseudoacacia L.
Red clover	Trifolium pratense L.
White clover	Trifolium repens L.
False indigo	Amorpha fruticosa L.
Hairy vetch	Vicia villosa (Kell.) Hermann
Croton	Croton spp.
Tamarisk	Tamarix gallica L.
Dayflower	Commelina diffusa F.
Goldenrod	Solidago spp.
Silverling	Baccharis halimifolia L.
Sea oxeye	Borrichia frutescens (L.) D. C.
Toothache tree	Zanthoxylum clava-herculis L.
Slough sedge	Carex obnupta Bailey
Lyngby's sedge	Carex lyngbyei Hornem.
Spike rush	Eleocharis palustris (L.) R. & S.
Tall wheatgrass	Agropyron elongatum (Host.) Beauv.
Bentgrass	Agrostis oregonensis Vasey.
	(Continued)

Table D1 (Completed)

Common Name	Scientific Name
Beachgrass	Ammophila arenaria (L.) Link
Tufted hairgrass	Deschampsia cespitosa (L.) Beauv.
Alta fescue	Festuca elatior L.
Creeping red fescue	Festuca rubra L.
Hannchen barley	Hordeum vulgare L.
Panic grass	Panicum spp.
Reed canary grass	Phalaris arundinacea L.
Common reed	Phragmites communis Trin.
Saltmeadow cordgrass	Spartina patens (Ait) Muhl.
Gulf cordgrass	Spartina spartinae (Trin.) Hitchc.
Natal grass	Rhynchelytrum roseum (Nees) Stapf. 8

<u>Table D2</u>
<u>List of Common and Scientific Names of Insects and Reptiles</u>
<u>Mentioned in this Report</u>

Common Name	Scientific Name
Ant	Crematogaster ashmeadii
Ant	Pseudomyrmex elongatus
Garter snake	Thamnophis spp.

### Table D3

### List of Common and Scientific Names of Mammals

#### Mentioned in this Report

Common Name	Scientific Name
Vagrant shrew	Sorex vagrans
Trowbridge's shrew	Sorex trowbridgii
Short-tailed shrew	Blarina brevicauda
Eastern mole	Scalopus aquaticus
Big brown bat	Eptesicus fuscus
Marsh rabbit	Sylvilagus palustris
Beaver	Castor canadensis
Marsh rice rat	Oryzomys palustris
Deer mouse	Peromyscus maniculatus
White-footed mouse	Peromyscus leucopus
Hispid cotton rat	Sigmodon hispidus
Meadow vole	Microtus pennsylvanicus
Montane vole	Microtus montanus
Townsend's vole	Microtus townsendii
Prairie vole	Microtus ochrogaster
Creeping vole	Microtus oregoni
Muskrat	Ondatra zibethicus
Norway rat	Rattus norvegicus
House mouse	Mus musculus
Meadow jumping mouse	Zapus hudsonius
Nutria	Myocaster coypus
Raccoon	Procyon lotor
California sea lion	Zalophus californianus
Harbor seal	Phoca vitulina
Mule deer	Odocoileus hemionus
White-tailed deer	Odocoileus virginianus

# <u>Table D4</u> <u>List of Common and Scientific Names of Birds</u> <u>Mentioned in this Report</u>

Common Name	Scientific Name
Common loon	Gavia immer
Arctic loon	Gavia arctica
Red-throated loon	Gavia stellata
Western grebę	Aechmophorus occidentalis
Horned grebe	Podiceps auritus
Double-crested cormorant	Phalacrocorax auritus
Whistling swan	Olor columbianus
Canada goose	Branta canadensis
Black brant	Branta bernicla
Snow goose	Chen caerulescens
Mallard	Anas platyrhynchos
Pintail	Anas acuta
American wigeon	Anas americana
Northern shoveler	Anas clypeata
Blue-winged teal	Anas discors
Cinnamon teal	Anas cyanoptera
American green-winged teal	Anas carolinensis
Canvasback	Aythya valisineria
Greater scaup	Aythya marila
Lesser scaup	Aythya affinis
White-winged scoter	Melanitta deglandi
Bufflehead	Bucephala albeola
Ruddy duck	Oxyura jamaicensis
Common merganser	Mergus merganser
Red-breasted merganser	Mergus serrator
Turkey vulture	Cathartes aura
Cooper's hawk	Accipter cooperii
Marsh hawk	Circus cyaneus

Continued

## Table D4 (Continued)

Common Name	Scientific Name
Red-tailed hawk	Buteo jamaicensis
Bald eagle	Haliaeetus leucocephalus
Merlin	Falco columbarius
American kestrel	Falco sparverius
Great blue heron	Ardea herodias
Black-crowned night heron	Nycticorax nycticorax
Yellow-crowned night heron	Nyctanassa violacea
Glossy ibis	Plegadis falcinellus
White ibis	Eudocimus albus
American oystercatcher	Haematopus palliatus
Black-bellied plover	Pluvialis squatarola
Semipalmated plover	Charadrius semipalmatus
Killdeer "	Charadrius vociferus
Whimbrel	Numenius phaeopus
Spotted sandpiper	Actitis macularia
Greater yellowlegs	Tringa malanoleucus
Lesser yellowlegs .	Tringa flavipes
Long-billed dowitcher	Limnodromus scolopaceus
Ruddy turnstone	Arenarius interpres
Dunlin	Calidris alpina
Sanderling	Calidris alba
Least sandpiper	Calidris minutilla
Western sandpiper	Calidris mauri
Common snipe	Capella gallinago
Glaucous-winged gull	Larus glaucescens
Western gull	Larus occidentalis
Herring gull	Larus argentatus
California gull	Larus californicus
Ring-billed gull	Larus delawarensis

## Table D4 (Continued)

Common Name	Scientific Name
Mew gull	Larus canus
Black-legged kittiwake	Rissa tridactyla
Bonaparte's gull	Larus philadelphia
Caspian tern	Sterna caspia
Black skimmer	Rynchops niger
Mourning dove	Zenaida macroura
Ground dove	Columbina passerina
Great horned owl	Bubo virginianus
Barn owl	Tyto alba
Common nighthawk	Chordeiles minor
Rufous hummingbird	Selasphorus rufus
Belted kingfisher	Megaceryle alcyon
Common flicker	Colaptes auratus
Downy woodpecker	Picoides pubescens
Western kingbird	Tyrannus verticalis
Willow flycatcher	Empidonax traillii
Horned lark	Eremophila alpestris
Barn swallow	Hirundo rustica
Cliff swallow	Petrochelidon pyrrhonota
Violet-green swallow	Tachycineta thalassina
Tree swallow	Iridoprocne bicolor
Bank swallow	Riparia riparia
Rough-winged swallow	Stelgidopteryx ruficollis
Common raven	Corvus corax
Common crow	Corvus brachyrhynchos
Black-capped chickadee	Parus atricappillus
Bushtit	Psaltriparus minimus
House wren	Troglodytes aedon

## Table D4 (Continued)

Common Name	Scientific Name
Winter wren	Troglodytes troglodytes
Bewick's wren	Thryomanes bewickii
Long-billed marsh wren	Cistothorus palustris
American robin	Turdus migratorius
Swainson's thrush	Catharus ustulatus
Golden-crowned kinglet	Regulus satrapa
Ruby-crowned kinglet	Regulus calendula
Water pipit	Anthus spinoletta
Cedar waxwing	Bombycilla cedrorum
Starling	Sturnus vulgaris
Orange-crowned warbler	Vermivora celata
Yellow warbler	Dendroica petechia
Yellow-rumped warbler	Dendroica coronata
Black-throated gray warbler	Dendroica nigrescens
Common yellowthroat	Geothlypis trichas
MacGillivray's warbler	Oporornis tolmiei
Wilson's warbler .	Wilsonia pusilla
Western meadowlark	Sturnella neglecta
Red-winged blackbird	Agelaius phoeniceus
Brewer's blackbird	Euphagus cyanocephalus
Brown-headed cowbird	Molothrus ater
Western tanager	Piranga ludoviana
Black-headed grosbeak	Pheucticus melanocephalus
House finch	Carpodacus mexicanus
American goldfinch	Carduelis tristis
Rufous-sided towhee	Pipilo erythrophthalmus
Savannah sparrow	Passerculus sandwichensis
Dark-eyed junco	Junco hyemalis

Table D4 (Concluded)

Common Name	Scientific Name
White-crowned sparrow	Zonotrichia leucophrys
Golden-crowned sparrow	Zonotrichia atricapilla
Song sparrow	Melospiza melodia